

Inside Dope

By GEORGE
F. TAUBENECK



Learn to live and laugh —
thus delay your epitaph

Stories of the Week
Women: Law Unto
Themselves
Verse of the Week
Dear Mr. Milkman
Summer Breezes
Culture, Yet
Sunday Morning
Aftermath

Stories of the Week

Movie producer Jack Warner held his head and moaned about the unruly independence of star Errol Flynn.

"So what?" answered brother Harry Warner. "I just signed a young fellow who can take his place. Wait a sec."

In a few moments Harry was back with his handsome prize.

"I guarantee you personal," effervesced Harry, "in a year he'll be as big a name as Flynn."

"Oh, no," mourned Jack. "So then he gives me trouble like this Flynn."

Harry glared at his new protégé.

"Get oudda here, ya trouble-maker!" Harry shouted.

"Those costumes I took off," testified Gypsy Rose Lee, "cost me up to \$3,000 apiece."

"It was expensive to shake those damned beads."

"Naw," cigarred a theatrical agent over the phone, "I don't need any more novelty acts."

"But I can blow square smoke rings, too," persisted the talent. Again a rejection by the agent.

"And for an encore I play a musical saw while sawing a girl in half."

"Look, buddy, I don't need no more night club acts now. Don't call me again. I'll call you if I need you."

"But, sir, I don't have a telephone. You see, I'm a bulldog."

Women: Law Unto Themselves

"And you can tell my no-good husband," continued Mrs. Grumm, "that if he misses one alimony payment I'll repossess him."

"Please show me some inexpensive shoes."

"Madame," suggested the clerk, "it would save us both time if you'd tell me with what you intend to wear them."

"A cheap husband," embittered Mrs. Smallbudget.

"You drive me crazy," snarled (Concluded on Page 6, Col. 1)

Big Sales Leave No Inventories In Auto Cooling

Units Need Special Parts, Components

DALLAS — Automotive Air Conditioning is a different breed of cat. Both air conditioning and automobile merchandisers realize this when they learn, enviously, that today there are no inventories of auto air conditioners. Sold out, slick as a whistle and clean as Mother Hubbard's cupboard.

Air conditioning engineers and component manufacturers also know that compressors, controls, belts, clutches, and desiccants must be designed especially for automotive air conditioning. Such was the chief conclusion of the Automotive Air Conditioning Forum conducted by the Texas Section of the Society of Automotive Engineers here Sept. 13. More than 350 attended, from all over the nation.

(Concluded on Back Page, Col. 2)

Detroit Nabs 19 For Unlicensed Cooling Jobs

By George M. Hanning
DETROIT—For allegedly installing air conditioning equipment in Detroit without a refrigeration contractors' license, 19 individuals and organizations have received summonses from the city's Department of Buildings and Safety Engineering to appear in Traffic Court on Oct. 3.

More summonses are being issued for later court dates as unlicensed installers are ferreted out, Frank Drogosch, city safety engineer, declared.

The 19 hailed into court in (Concluded on Page 4, Col. 3)

Fort Worth Group To Study Business Management

FORT WORTH, Texas—Continuing its efforts to help local contractors improve their lot, the Fort Worth Air Conditioning Association is co-sponsoring a Management Institute at Texas Christian university here this fall.

School of Business of T.C.U. and the association have programmed a series of nine once-a-week conferences covering all phases of management specifically tailored to meet air conditioning contractors' needs.

Classes will meet every Tuesday evening in the Science Bldg. on the T.C.U. campus from 7 to (Concluded on Back Page, Col. 1)

Talk Brings No Solution on Gas Refrigerator Future

CHICAGO — No decision on the future of the gas refrigerator came out of a meeting held here recently between a committee of gas utility representatives and four major appliance manufacturers.

Though no announcement was made as to what went on during (Concluded on Page 4, Col. 5)

Mfrs. View 750,000 Room Unit Inventory as Quite Manageable

See Banner Year In '58 for Room Coolers

ABSECON, N. J.—Estimates made by members of the air conditioning industry recently, indicating that manufacturers and distributors have on hand an inventory of around 750,000 room air conditioners, are approximately correct, on the basis of preliminary figures as of Aug. 31, it was announced by George S. Jones, Jr., managing director of the Air-Conditioning & Refrigeration Institute.

While final figures are not available, preliminary reports indicate that 1957 sales were within 3% of 1956. (Editor's Note: Retail sales of room air conditioners in the last air conditioning year were estimated at 1,625,000 units.)

The Room Air Conditioner Section of ARI met at the Sea-view Country Club here Sept. 17 and 18.

Jones said that manufacturer-members attending the meeting view the estimated inventory as quite manageable.

In fact, they expressed the belief that inventories at retail level are lower than last year, and that a substantial part of (Concluded on Back Page, Col. 1)

Amana Promotes Wendler, Pearce As Rishel Leaves



WENDLER



PEARCE

AMANA, Iowa — Walter A. Wendler has been named vice president in charge of sales and Robert I. Pearce sales manager of Amana Refrigeration, Inc., according to George C. Foerster, executive vice president.

The appointments, effective Oct. 1, follow the resignation of J. A. Rishel, Jr., Amana sales manager for the past two and one-half years. Wendler's appointment represents a newly-created position.

Wendler, a native of Amana, first joined the Refrigeration Div. of Amana Society in 1942 and has served in various sales capacities. In 1952, he was (Concluded on Page 29, Col. 5)

Norge Offers 3 All-New 12,16,20-Cu. Ft. Freezers

CHICAGO—Three completely new 1958 chest freezers in 12, 16, and 20-cu. ft. capacities were announced recently by Norge Div., Borg-Warner Corp.

Frozen food capacities are 420, 560, and 700 lbs., respectively. A special sharp-freeze compartment with refrigeration coils at the bottom provides (Concluded on Page 4, Col. 5)

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Heat Pump Drive

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Sees Evidence That Thermal Conditions May Affect Man More Than Hard Work

LOS ANGELES—"It is a physiological sin to wear clothing at a temperature above 85°," according to Dr. L. P. Herrington of Yale university and director of research for Pierce Laboratory of Hygiene.

He was one of several experts who dealt with man's efforts in "designing the indoor climate" at an environmental control conference staged on the campus of the University of California at Los Angeles Sept. 12-13.

Dr. Herrington spoke on the subject, "Human Requirements for the Ideal Indoor Climate."

Evidence is mounting, Herrington told his audience of builders, architects, engineers, and contractors, that thermal conditions may have a greater effect on shortening human life than hard work has.

Only home protection may relieve man from the cumulative effect of atomic radiation and other air contamination.

"We are in a period where industrial processes are certain to vastly increase radiation exposure," Herrington said.

He advised architects and builders to take a lesson from the pages of the military, and design homes in the light of available physiological data which is demonstrating that climatic environment exerts a (Concluded on Page 29, Col. 1)

Commercial Section

DRAIN PIPE INSTALLATION, supermarket layout are topics of a discussion by C. A. Hinkley of Tyler Refrigeration Corp. which appears on page 22.

Senate Unit Slices 1 'Objectionable' Feature from Anti-Bid Shopping Bill

WASHINGTON, D. C. — The Federal Construction Contract Procedures bill, also known as the anti-bid-shopping bill, was reported out of the Senate Judiciary Committee before Congress adjourned but no further action was taken.

The bill reported out was H.R. 7168—already passed by the House of Representatives. The Senate committee amended it, however, to remove a provision that would restrict mechanical specialty contracting work to 5 ft. beyond the building line.

When Congress returns in 1958, the bill may be called up for floor debate whenever the Senate majority leader requests it.

The amendment eliminates one of the objections to the bill

that have been raised by the National Association of Plumbing Contractors and the United Association.

NAPC President Wilbur S. Hokom reaffirms that his organization still objects to the bill on three other grounds. They are:

1. It "unwisely" establishes a single contracting system for construction contracting.

2. It will encourage, not prevent bid-shopping and peddling.

3. It could be used to break down state laws now governing separate contracting and bid-shopping.

NAPC feels that bid-shopping is encouraged rather than discouraged by the new measure because it permits general contractors to change subcontractors at will within five days.

Well, Where In Hell Is The Air Conditioning?

MARSHALLTOWN, Iowa—Lennox Industries, Inc., manufacturer of residential heating and air conditioning equipment, will literally go to Hell to please a customer.

That was proven recently when W. C. Fields (no relation or reincarnation) sold a hot air furnace to a customer in Hell, a small Michigan town southwest of Pinckney. Fields is a Lennox dealer.

Lennox executives were amused and pleased by the sale but asked the inevitable question, "Where in Hell is the air conditioning?"

To Condition Bank

MIAMI, Fla.—Contract to air condition the First National Bank of Miami has been awarded the Poole & Kent Co.

N. Y. RACCA To Open Negotiations with UA, Wants Contract Similar to Jersey's

NEW YORK CITY—At its regular monthly meeting here recently, the New York group of the Refrigeration & Air Conditioning Contractors Association (RACCA) voted in favor of re-opening negotiations with Local 638-B of the Metal Trades Branch of the United Association.

RACCA members have been operating without a contract since July, 1956. The union local wishes to effect a contract with RACCA similar to the one it has with the Mechanical Contractors (formerly Heating, Piping & Air Conditioning Association).

MCA members are installers of large air conditioning systems, mostly on new commercial and industrial constructions. It is the contention of RACCA

that its members have different labor problems, since they work on smaller installations and do a great deal of service.

Leonard Morris, president of the New York RACCA, suggests that the New York contract be made to read essentially like that recently signed by RACCA and the UA in New Jersey. The local group would prefer to negotiate with some independent division of the UA. New Jersey has this type of division.

To Air Developments In Food, Milk Processing at Public Health Conclave

NEW YORK CITY—A discussion of health implications of new developments in food and milk processing will highlight the 85th annual meeting of the American Public Health Association in Cleveland Nov. 11-15.

Sessions on this and other topics of concern to nutritionists and the food industry will be open to non-members as well as members of the association upon payment of a registration fee.

Robert C. Roe, director of the bureau of biological and physical science, U.S. Food and Drug Administration, will give a paper on the use of chemicals and antibiotics in food and milk processing.

Recent findings on the freezing and irradiation of milk and food will be discussed by John T. R. Nickerson, Ph.D., Bernard E. Proctor, Ph.D., and Samuel A. Goldblith, Ph.D., all from the department of food technology at the Massachusetts Institute of Technology.

The packaging, storing, and vending of food and milk will be treated by Walter D. Tiedeman, executive director of the National Sanitation Foundation Testing Laboratory at the University of Michigan.

All three of these talks are scheduled for a session starting at 2:30 p.m., Monday, Nov. 11 in South Hall, Room A, Public Auditorium.

Westinghouse To Start Nov. Distributors' Cooling Meetings In New Orleans

STAUNTON, Va.—The air conditioning division of Westinghouse Electric Corp. has announced the dates and locations for its 1958 distributor sales conferences.

The new 1958 product line will be shown and sales and promotion plans will be explained at these meetings.

Instead of holding only one central meeting, this year two separate conferences will be held. The first of these, for the Dixie group of distributors, will be held on Nov. 7 and 8, 1957 at the Jung hotel, New Orleans. The Dixie meeting will include distributors in the southern part of the United States from California to Florida.

On Nov. 14 and 15 at the Deshler hotel, Columbus, Ohio, the Yankee meeting will be held. It will draw distributors from the northern half of the United States.

When buying a low temperature system compare the total cost of all equipment including the coils, compressor and controls and you will find that...

THERMOBANK SAVES DOLLARS ON COMPRESSOR COST

It uses a smaller horsepower compressor than all other systems for the same capacity; because only THERMOBANK can use a low temperature compressor without overloading the compressor motor.

THERMOBANK PRICE INCLUDES ALL PARTS

It is complete; no extras to buy. Competitive systems require extras such as electric heaters, hand valves, electric lines, controls, insulation, etc.

ONLY THERMOBANK ELIMINATES LIQUID DAMAGE

It provides an abundance of heat for positive liquid re-evaporation during defrost. Systems that depend on heat of compression as source of heat will circulate liquid. Liquid slugging results in progressive compressor damage and expensive repairs.

ONLY THERMOBANK PREVENTS LUBRICATION FAILURES

With THERMOBANK oil stays in the crankcase. All other systems have a sharp reduction in suction pressure after defrosting, causing oil foaming and oil pumping, exposing the compressor to lubrication failures.

THERMOBANK COSTS LESS TO OPERATE

It uses less electricity and operates fewer hours. Only THERMOBANK automatically regulates defrosting based on frost buildup and eliminates unnecessary defrosting cycles. It defrosts at any outdoor temperature and is very fast (all other systems require three to four times longer to defrost).

ACTUAL USE PROVES THERMOBANK IS TROUBLE-FREE

THERMOBANK is the oldest and the only time-proven system that can assure an owner trouble-free operation without continual threat of system failure and loss of expensive frozen food.

WRITE FOR AVAILABLE LITERATURE

KRAMER TRENTON COMPANY Trenton 5, New Jersey

44 YEARS OF CONTINUOUS ACHIEVEMENT IN HEAT TRANSFER

**WHY
KRAMER
THERMOBANK
MAKES
CENTS**

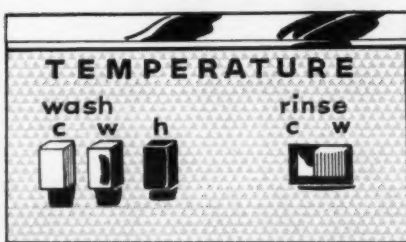
...it costs
less to buy
and less
to operate

ONLY THE NEW 1958 KELVINATOR GIVES YOU ALL THESE SELLING FEATURES!

**Automatic
Lint Filter!**



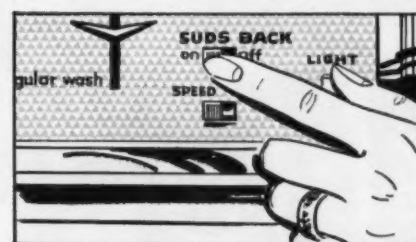
**Choice of Wash and
Rinse Temperatures!**



**2 Cycles plus 2 Wash and
2 Spin Speeds!**

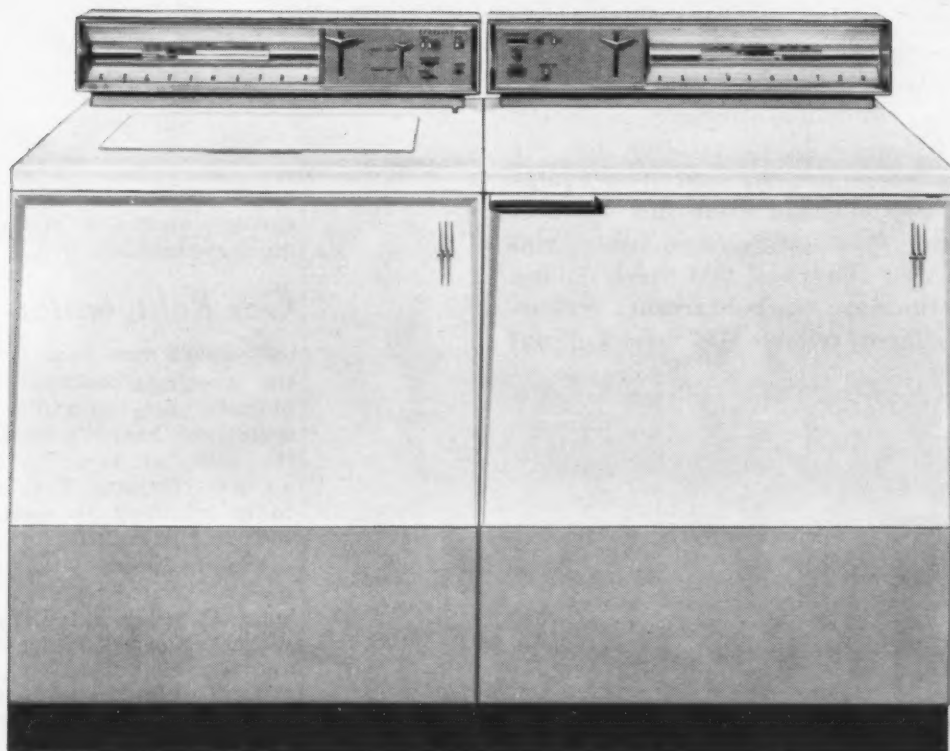


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AND THE GREATEST EXCLUSIVE IN THE LAUNDRY INDUSTRY TODAY...

the **"Magic Minute"**
GIVES YOU AUTOMATIC PRE-SCRUBBING—impossible in any other washer!



WRINKLE FREE DRYING! NO HEAT FLUFF DRYING!

New 1958 Kelvinator Automatic Electric Dryers—Drys Clothes As Fast As
You Can Wash Them—Give You Triple Safety Features.

*The "Magic Minute"—60 seconds of automatic
pre-scrubbing in double rich suds cuts grease and
grime before the regular washing begins!*

Here, in a single line, you can now offer your customers
every automatic washer feature they are likely to want
—and Kelvinator's famous Magic Minute, too.

The Magic Minute, the most powerful demonstration
and selling feature in the industry, is yours in every
1958 Kelvinator automatic washer.

Yes, you get more features that close sales when you
concentrate on a full line of matching washers and
dryers to meet every competitive selling condition.

**Ask your Local Zone or Distributor How
You Can Get Aboard**

**KELVINATOR'S
Magic Carpet Carnival**

A Great Traffic-Building and Sales-Closing Promotion!



American Motors Means
More For Americans



Live Better
Electrically

Kelvinator MEANS BUSINESS



GOOD BUSINESS FOR YOU!

Gas Cooling Highlights Mid-West RSES Nab 19 Unlicensed Installers-- Oklahoma City Convention Sept. 26-29

OKLAHOMA CITY — The ninth annual convention of the Mid-West Association of the Refrigeration Service Engineers Society will be held Sept. 26-29 at the Hotel Biltmore here.

A soldering contest, to determine the champion of the Mid-West Association, will be sponsored by Mueller Brass Co., with William W. West of Mueller officiating. A program for the visiting ladies is also being arranged.

Included in the educational program will be the following talks:

"Gas Operated Air Conditioning Equipment," by Frank Webb, Oklahoma Natural Gas Co.; "Refrigerants," by Dan C. Anderson of General Chemicals Co.; "Control Wiring," by Ed

Aston, Minneapolis-Honeywell Regulator Co.; "Low Temperature Defrosting," by J. C. Lewis, Recold Corp.; "Air-Cooled Condensers," by Frank Klass of Refrigeration Appliances, Inc.; "Capacitance," by B. J. Parker, General Electric Co.; "Flow Control Valves," by Norm Harper, Alco Valve Co.; "Coils—Direct Expansion, Hot and Chilled Water," by H. B. Williams, McQuay, Inc.; and "Automotive Air Conditioning," by Bruce W. Reed, O. A. Sutton Corp.

To Condition Church

RUFFIN, S. C.—The Ruffin Methodist Church Women's Society of Christian Service will have as its project the air conditioning of the church.

(Concluded from Page 1, Col. 2) 25 separate cases on Oct. 3 far exceeds the normal trickle of court actions for violating the city's refrigeration code.

Drogosch and Edwin Slater, assistant corporation counsel, insist that the big rush of cases represents no "drive" against and particular groups.

The rush results from an accumulation due to Slater's vacation and to new sources of violation information made available to the department in the past few months.

Among the 19 scheduled to appear Oct. 3 are 10 heating contractors, three plumbers, two mechanical equipment installers, two unlicensed individuals, one builder, one sheet metal worker.

The heating contractors are involved in 16 separate cases. Three of them are up for multi-

ple violations and one is answering his second summons.

"The law requires a refrigeration contractors' license to install air conditioning equipment," Drogosch explained. "It is our duty to see that the law is enforced."

Up to very recently, he noted, the department has had meager means of discovering license violations. Accidental discoveries by inspectors and complaints from licensed operators were the chief source of information.

But this past summer, the department has received data from the Water Board showing where greatly increased use of water might indicate the presence of a new air conditioning system. If an air conditioning permit is not on file for that location, an investigation is made.

This has brought to light a

number of residential installations that have been almost impossible to uncover in the past.

Other new sources of information are electrical and plumbing permits. Where the permit indicates new air conditioning, the location is checked. A number of violators have been discovered in this fashion.

Drogosch pointed out that a majority of the violators are contractors licensed in some other field, such as heating, plumbing, or electrical, but who have no refrigeration contractors' license.

"Some of these contractors feel that we ought to just hand them a refrigeration license," Drogosch commented. "But the code does not permit that. They must pass an examination to show that they know something about refrigeration before we can issue a license."

Maximum penalties for installing without a license are 90 days in jail and/or \$500 fine for each day of violation.

Norge Freezers--

(Concluded from Page 1, Col. 5) extra-low temperatures for quick freezing. A cold control automatically maintains zero cold in the main storage compartment of the glass fiber insulated cabinet, it was noted.

Interior features are recessed automatic light in lid; heavy duty sliding, removable storage baskets; adjustable storage dividers; and "lifetime fashion-wise" pink finish.

Exterior appointments are counterbalanced lid that opens with a touch of a finger; auto-type lock; seamless cabinet; baked enamel finish; and recessed base.

"An exclusive 'dri-wall' condenser prevents condensation of moisture, assures dry cabinet exterior in any climate, and eliminates condenser cleaning and service," the company said.

The 1/4-hp., 110-120-volt, 60-cycle a.c. compressor is permanently sealed in oil. Internal spring suspension is used for quiet operation.

Gas Refrigerator--

(Concluded from Page 1, Col. 3) the meeting, unofficial reports indicate that the utility representatives heard proposals by the manufacturers for making a gas refrigerator. They are said to be planning to meet again soon to analyze these proposals.

Manufacturers attending the meeting were reported to be Hupp Corp.; Norge Div., Borg-Warner Corp.; Philco Corp.; and Whirlpool Corp.

The present "crisis" developed when Servel, Inc., the only producer of a gas refrigerator in this country, ceased production and announced its intention to leave the field.



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Wherever clean tubing counts, GM Steel Tubing assures trouble-free performance *all* the time. Four separate cleaning processes and painstaking inspections guarantee the cleanest tubing you can buy! The steel strip is dry steam-cleaned, then annealed in a controlled atmosphere. Tubing is next solvent-cleaned in preparation for the fourth step . . . inspection by analytical equipment capable of detecting even the smallest amount of residue. The result: clean tubing you can depend on . . . at typical GM Steel Tubing savings. Help eliminate costly warranty claims. Always specify rugged, reliable GM Steel Tubing!

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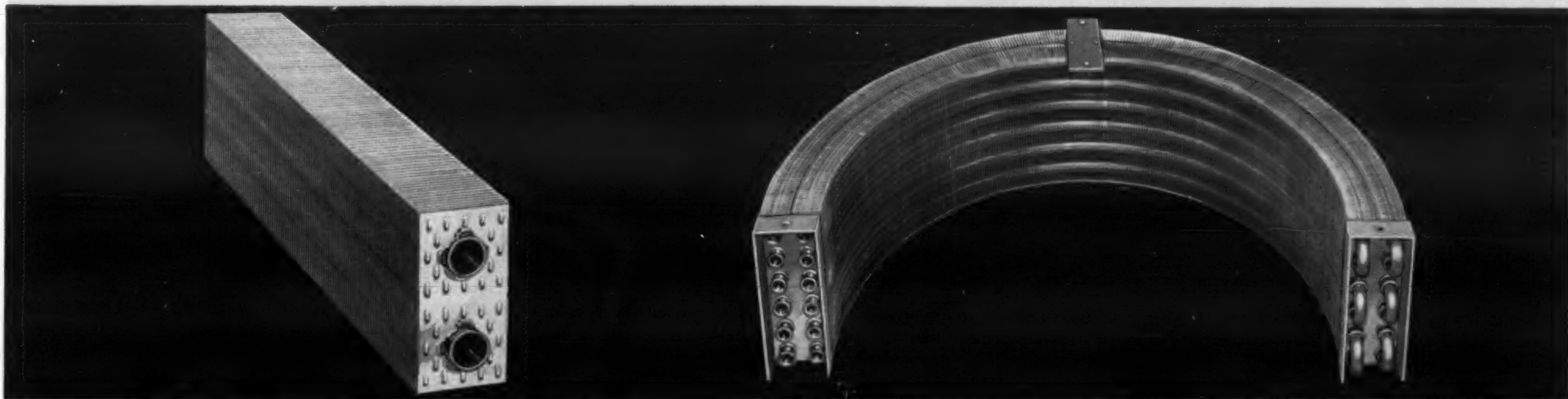
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WATER-COOLED
CONDENSERS $\frac{1}{4}$ TON to 15 TONS
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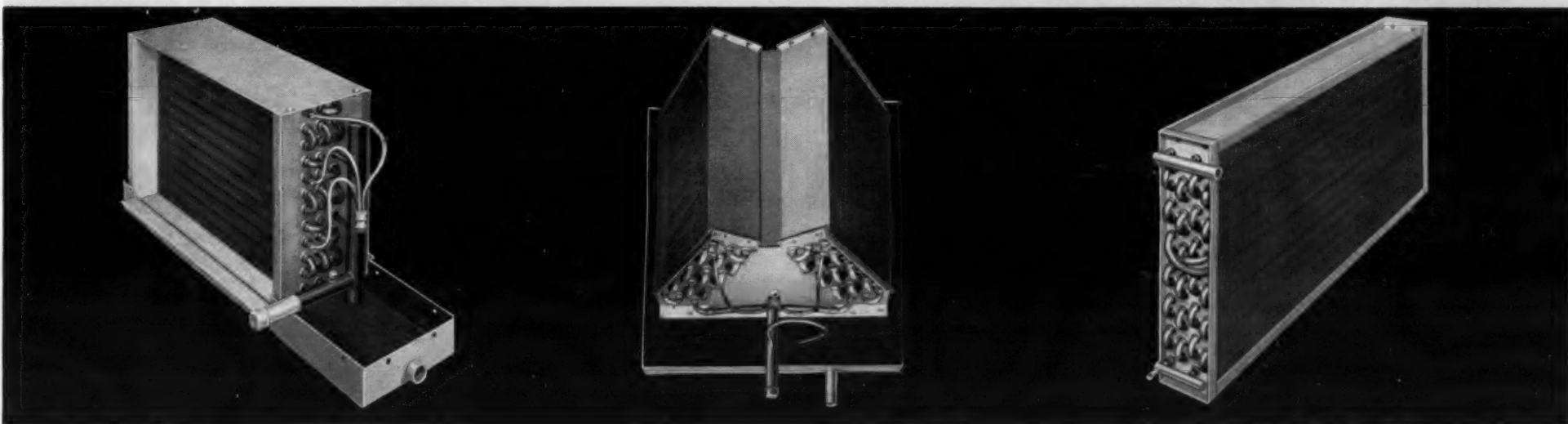
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SO HALSTEAD & MITCHELL ENGINEERS ASKED . . .

PLANNING COIL PRODUCTION?



USE TURBU-FLO FINNED SURFACE

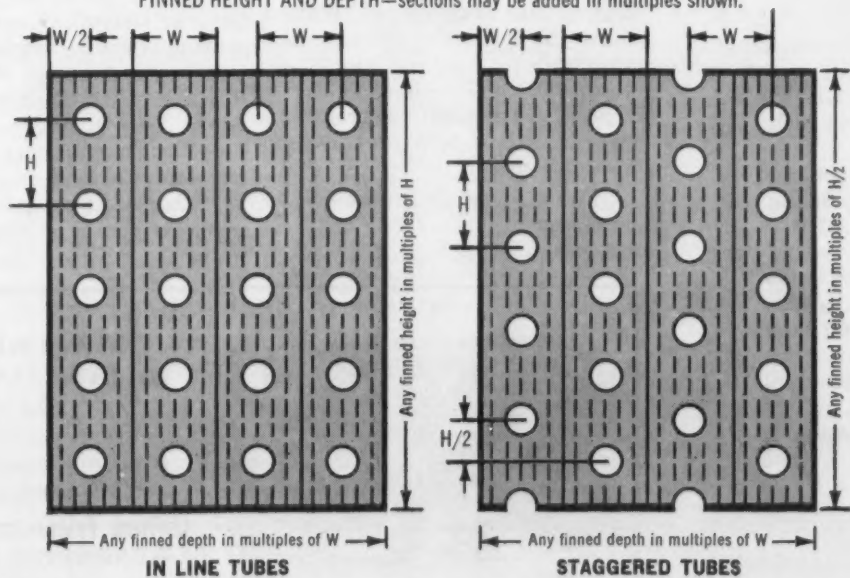


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LENGTHS UP TO 25 FEET**

TUBING				FINS		
SIZE O.D.	MATERIAL	SPACING center to center W x H	PATTERN	SPACING fins per inch	DESIGN	MATERIAL
3/8"	Copper	1 1/2" x 1 1/2"	In Line	5, 6, 7, 8, 9 or 10	Turbo-Flo	Aluminum
1/2"	Copper	1 1/4" x 1 1/4"	or	7, 8, 9, 10, 11, 12 or 13	Turbo-Flo	or
5/8"	Copper	1 1/8" x 1 1/8"	Staggered	7, 8, 9, 10, 11, 12 or 13	Turbo-Flo	Copper*

*With copper fins, fin spacing of 6 thru 13 per inch is available.
FINNED LENGTH may be obtained in lengths up to and including 25 feet.
FINNED HEIGHT AND DEPTH—sections may be added in multiples shown.



If your products involve heat transfer coils—for air conditioning, refrigeration, or heating—plan now on Halstead & Mitchell Turbo-Flo finned surface.

Either complete coils or bulk finned stock can be supplied to meet your requirements. Copper tubing with either aluminum or copper fins is available in basic specifications as shown. Halstead & Mitchell will fabricate coils for you of almost any size and shape, or supply finned stock in lengths up to 25 feet for assembly in your plant.

All H&M finned tubing features exclusive Turbo-Flo design. This streamline, embossed pattern will provide up to 15% more heat transfer for a given coil size.

Write today for complete information on prices and delivery. Halstead & Mitchell, Bessemer Building, Pittsburgh 22, Pa.



Inside Dope

By GEORGE
F. TAUBENECK

(Concluded from Page 1, Col. 1)

Wife. "I'm gonna divorce you."
"Aw," mumbled Hubbie,
"you're just saying that to
make me feel good."

"Come quick, Doctor," phoned
a woman.

"When my husband got up
this morning he took a pill for
his ulcer, an aspirin, a cold pill,
an iron pill, a vitamin pill, Mil-
town, dexamyl, equanil—and
then he lit his cigarette and
exploded!"

Verse of the Week

Their joint account's retarded
By one persistent flaw.
He's fast on the deposits
But she's quicker on the draw.

Dear Mr. Milkman

Apparently housewives deem
The Milkman to be a member of
their family. Here are some
notes found in French-Bauer
(Ohio dairy) milk bottles:

"Hi! 4 milk 2 cereal cream.
And there's coffee in the pot.
Signed, The Old Lady."

"Dear Milkman: Please lay a
dozen eggs on my front porch."

"Please leave 1 half gallon.
We had twins. I guess you will
be happy."

"If you see a black and white
dog down the street, please send
it home."

"Please come into the hall and
take the mouse out of the trap.
I haven't the heart."

"Continue to leave a pint a
day during our vacation. Please
put it in the saucer on the back
steps. It's for the cat."

"You were sweet to take my
washing in yesterday."

"If you're the same milkman

who saw me stagger in yester-
day morning, forget it. I'm try-
ing to."

Summer Breezes

On the assumption that it's
too warm to discuss serious
subjects, "Dope" devotes this
kolyum to easy laughs. Such
as:

Jalopy drew up to a curb.
Horn honked raucously.

"Hey, Stevie," a girl called
out from an upstairs window.
"Come to the front door. Father
has stopped curb service."

Jeff Williams, Oklahoma phi-
losopher, remarks that any coun-
try which gives away Cadillacs
as booby prizes on TV quiz
shows is good enough for him.

To cut off avoidupois, Joe E.
Lewis gave up whisky and des-
serts.

"In 14 days," he stated, "I
lost two weeks."

Cousin of Syngman Rhee from
Korea got a job on *Life* maga-
zine. On the second day he failed
to show up. A week went by,
and he still was missing.

Fellow workers phoned his
hotel, checked all possible points
where he could be visiting.
Finally they organized posses
and began fine-tooth the city
block by block.

One searcher entered a neigh-
borhood bar. There, on a stool,
was his man. Overcome with joy
and relief, the searcher rushed
up and—please brace yourself—
exclaimed:

"Ah, sweet Mr. Rhee of *Life*,
at last I've found you."

Culture, Yet

Sir Arthur Eddington was ap-
proached almost reverently at a
cocktail party.

"They tell me, Sir Arthur, you
are one of the three men in all
the world who understands the
Einstein Theory."

The renowned physicist brow-
furrowed.

"I wonder," he mused, "who
that third man is."

For a long, long time poets
and just plain guys have been
comparing women with music.
But it remained for a fast-
thinking symphony conductor,
whose wit is as deft as his wrist,
to capsulize this theme in pres-
ent-day language.

When a young music lover
bragged that he avoided sym-
phony concerts because "I've got
all the great music on records at
home—if I want to hear it I
just turn on the phonograph" Maurice Abravanel, maestro of
the Utah Symphony Orchestra
squelched him with:

"You remind me of the boy
who spent all his time in his
room admiring his collection of
pin-up girls. He never realized
that the sweet young thing next
door had something to offer per-
sonally which pin-ups couldn't."

Sunday Morning Aftermath

"Please hold the repair bill as
low as you can," Rev. Jones
mided a garageman. "I'm just
a poor preacher."

"That I know, Reverend," ad-
joined the fender-bumper. "I've
heard you preach."

Emerging from a call on an
ailing person, Rev. Softheart
saw a staggering drunk on the
street. He knew the man, and
helped him home.

"Pleash come inna housh,"
begged the staggerer. "Wanna
show the wife who I been with
tonight."

Southern Baptist congregation
informed their new preacher he
wouldn't do.

"Don't I argufy enough?" he
implored.

"Uh huh."

"And don't I sputify?"

"Yes, but you don't say
'wherein' and 'whereas.'"

To his bishop a young minister
explained why he had resigned
from his first pastorate.

"There were too many young
girls and widows who set their
caps for me."

Chuckled the bishop: "There's
safety in numbers."

"Possibly," replied the young
man. "However, I found it in
Exodus."

Hoosier State RSES To Meet Oct. 4-6 In Indianapolis

INDIANAPOLIS—Hoosier
State convention of the Refrig-
eration Service Engineers So-
ciety will be held Oct. 4-6 in the
Antlers hotel here, E. W. Wulf,
general convention chairman,
has announced.

Six talks and demonstrations,
two on Friday evening and four
on Saturday fill the program.
A soldering contest sponsored
by Mueller Brass Co. will cap
Saturday's program.

On Friday evening, Mr. Gar-
rison of Stewart-Warner Corp.
is scheduled to show a working
model of an air conditioning and
heating unit and describe its in-
stallation and service.

William Pollock, service man-
ager of Temprite Products Corp.,
will demonstrate the servicing
of Temprite products.

On Saturday, R. Dean Gumbel
of Calgon, Inc. will show slides
and discuss water treatment,
using a plastic working model
of a cooling tower. Tom Morris-
on of Paragon Electric Co. will
describe the application of time
controls in refrigeration.

After lunch, Dr. Walter O.
Walker, consultant on "Gene-
tron" refrigerants to General
Chemical Div., Allied Chemical
& Dye Corp., will speak on mois-
ture problems. John H. Spence,
service manager of Hussmann
Refrigeration, Inc., will outline
new developments in food store
refrigeration equipment.

Wulf said the Indianapolis
chapter, host to the convention,
is planning a buffet luncheon
Friday evening and cocktail
hour, banquet, floor show, and
dancing Saturday evening.

RSES members from neigh-
boring states are invited.

Detroit RSES Will Hear Talk on Hermetic Servicing

DETROIT—A meeting of the
Greater Detroit Chapter, Refrig-
eration Service Engineers So-
ciety, will be held Sept. 26 at
8 p.m. in the UAW-CIO hall,
20424 John R. St.

A program sponsored by the
Brunner Co. will feature a talk
by Charles Heathman, service
manager, on servicing hermetic
units.

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so call in COMMERCIAL CREDIT**

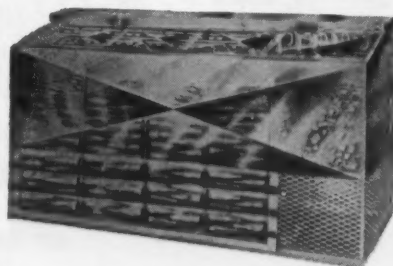


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... most of your prospects need their cash
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Refrigeration Plan is backed by many years'
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tioning installations. Let us show you how
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A service offered through subsidiaries of Commercial Credit Company, Baltimore ... Capital
and Surplus over \$200,000,000 ... offices in principal cities of the United States and Canada.

"A CASE OF COOL JUDGMENT"



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DRINKMASTER
STAINLESS STEEL
CUBER—COOLER.**

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WRITE

**United Friguator Engrs.
MENOMINEE, MICH.**

AVAILABLE IN SIZES 4 to 10 FT.

People Want It

Contractor Provides Fresh Air In Home Cooling System with Special Damper

By George M. Hanning

FORT WAYNE, Ind.—The most important factor in home air conditioning from the customer's standpoint is fresh air, believes Merrill Swaidner of Swaidner Refrigeration and Air Conditioning here.

"People like fresh air," he notes. "They might not think anything about it until you start putting on the storm windows and drawing the drapes. Then they begin to feel shut in."

"That's the time to show them that you have provided for fresh air into the system," he says.

Swaidner, who has been in business for himself since 1955 and was the service manager for Rhoads Refrigeration for years before that, declared that he likes to install a damper on the furnace that will permit 20 to 25% fresh air during the day and then will open up to about 35% in the cool evening after the sun has gone down.

That way, he believes, the customer will get plenty of fresh air without adding unnecessary load on the cooling system.

Fresh Air Helps Eliminate Odors

Another factor is that fresh air helps to eliminate unpleasant odors that would linger in a house using only recirculating air. For example, a house with attached garage sometimes picks up gasoline fumes that would be hard to get rid of without fresh air circulation.

Swaidner, as he says, is just getting his feet wet in the air conditioning business. He did several residential jobs during the 1956 season, but has done few this season. The fortunes of business have kept his four-man organization busy on commercial work this year.

Has System In His Own Home

But Swaidner takes the residential market seriously. He installed a cooling system in his own home so that he could tell prospects about the benefits of home air conditioning from his own experience.

"That's how I came to realize the great importance of fresh air in a system," he noted. "Finding out what the difference is right at home."

He also learned, he said, that a 15° F. temperature differential is not necessary to be comfortable. "That's a lot of baloney," he snorted.

As have others, Swaidner found that getting into home air conditioning sales involved doing furnace work, too. While some customers want air conditioning added to their present heating plant, others want—or must have—their whole heating system replaced.

Although Swaidner, who handles the Frigidaire line, took a course of instruction in heating from Frigidaire—"an excellent course," he testified—he still found that he needed advice from experienced heating people on particular problems.

So he teamed up with a heating distributor—Tri-State Supply Co. here—to exchange information and assistance. When he had a problem in heating, he would take it to the people at Tri-State. They would give him advice on how to solve his problem.

Heating Easier to Learn Than Refrigeration

They, in turn, were getting into air conditioning, too. But they had no background in refrigeration. When they ran into refrigeration problems, they would call on Swaidner for as-

sistance. He gave it to them.

Looking back on his own experience, Swaidner believes that it is much easier for an experienced refrigeration man to master heating than for a heating man to learn refrigeration.

"There's a lot more to know about cooling than heating," he avers.

Now he is taking on jobs that involve only heating. Just recently he installed his first high pressure steam system for a local bakery.

Another important point the newcomer to residential air conditioning work must learn is to turn down the tough jobs.

"At least the ones that look

tough," Swaidner smiled. "We had some that looked simple at the beginning but turned out to be pretty tough."

After a little experience, Swaidner learned to size up what difficulties he might meet by just looking over a house.

If the heating ducts are not adequately sized for cooling or it would cost too much to make a good cooling installation, Swaidner is wary.

If the problems are beyond the scope of his organization's capabilities or if installation costs would be more than the customer is willing to pay, Swaidner turns the job down. Or, if there appears to be a satisfactory alternative, he suggests that.

"If the customer can do a more satisfactory job of cooling with window units than with a central system, I tell him so," he commented. "I'd rather have a satisfied customer than sell a

job I knew would not be able to perform the way I said it would."

So far, Swaidner asserted, all his customers—though not numerous yet—are satisfied.

Waterman-Waterbury Names Jack Searls Director of Sales

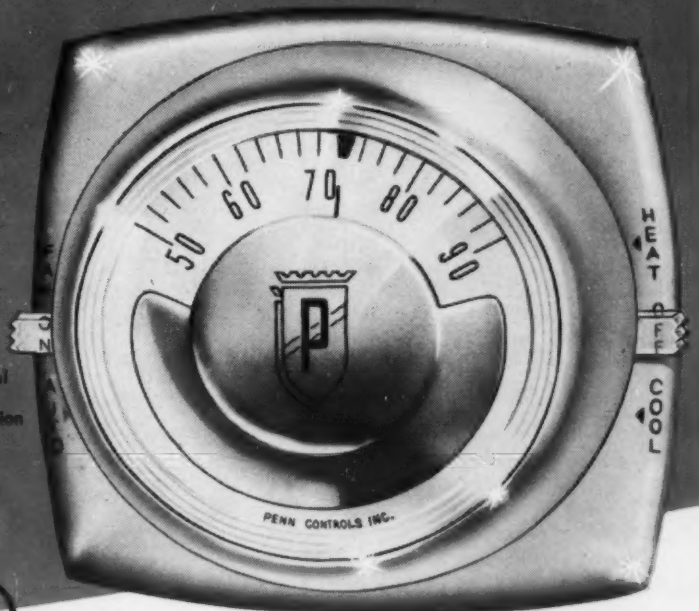
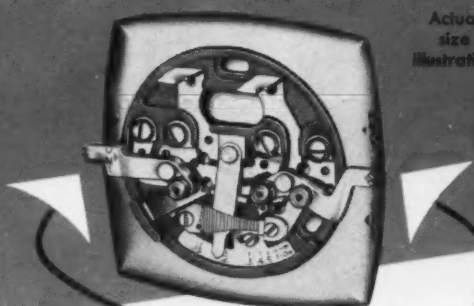
MINNEAPOLIS—Jack Searls, formerly assistant to the president of The Waterman-Waterbury Co. here, has been elected by the board of directors to the post of vice president and director of sales for the company, manufacturer of warm air heating and air conditioning equipment.



Jack Searls

PENN "RIMSET" THERMOSTAT REDUCES YOUR INVENTORY

Now...the same room thermostat can be used for 12 different heating and cooling jobs... just change the sub-base!



HERE'S HOW IT'S DONE

You don't have to stock a different thermostat for each heating and/or cooling job! You just need one—the new all-purpose Penn "RIMSET" thermostat that quickly "plugs" into any sub-base required for the job. Inventory is reduced because you stock variables of the sub-base only!

Installation is simpler, too! Sub-base does not have to be installed in a perfectly level position for accurate operation. The adjustable heat anticipator and all wiring are on the sub-base where large terminals are easily accessible.

And, this beautiful room thermostat gives you new sales power! It has the largest, most easily read dial you've ever seen... and the scale remains stationary as the rim is dialed for the temperature setting!

Once you see this new, excitingly different thermostat, you'll want to specify and install it in all your heating and cooling jobs!

APPLICATION	FAN SELECTOR SWITCH	SYSTEM SELECTOR SWITCH
HEATING ONLY	—	—
	—	AUTO-OFF
COOLING ONLY	—	—
	—	AUTO-OFF
	AUTO-ON	AUTO-OFF
COOLING—with system interlock for separate heating thermostat	AUTO-ON	—
	—	HEAT-OFF-COOL
COMBINATION Heating-Cooling	—	HEAT-OFF-COOL
	AUTO-ON	HEAT-COOL
	—	HEAT-OFF-COOL
	AUTO-ON	HEAT-OFF-COOL

PENN CONTROLS, INC. Goshen, Indiana

EXPORT DIVISION: 27 E. 38th ST., NEW YORK, N. Y.

AUTOMATIC CONTROLS FOR HEATING, REFRIGERATION, AIR CONDITIONING, GAS APPLIANCES, PUMPS, AIR COMPRESSORS, ENGINES

Refrigeration Controls Reactor Temperatures In Goodyear Synthetic Rubber, Plastic Plant

AKRON, Ohio—Four two-cylinder 12 by 12 Frick Co. ammonia compressors handle the main refrigerating load with a 5 by 5 compressor intended for pump-out service at Goodyear Tire and Rubber Co.'s Chemical Div. plant for making synthetic rubber and plastics recently completed here.

Known as the "Chemigum" plant, this installation has several batteries of large reactors, equipped to handle the making of both synthetic rubber and plastic compounds.

Each reactor measures approximately 75 in. in diameter by 14 ft. in height, and has a capacity of about 3,000 gals. The reactor room contains an

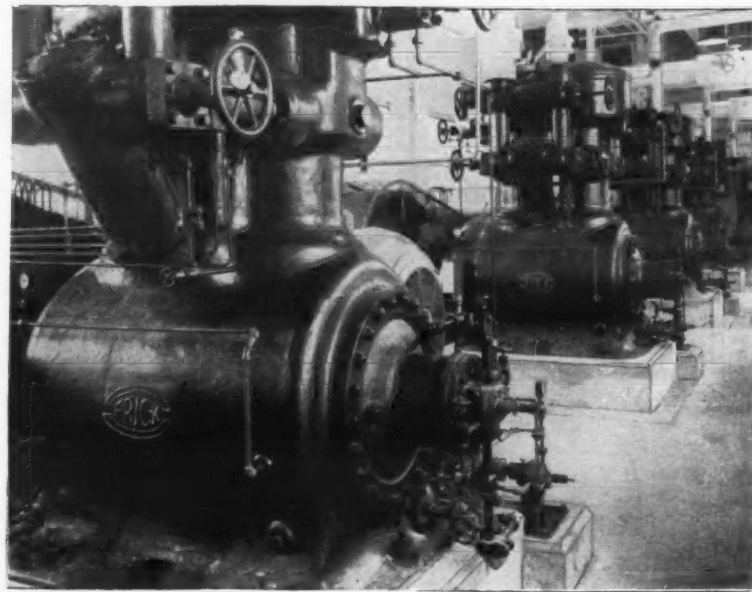
elaborate system of piping for raw and finished materials, along with air and electric controls used for filling, emptying, and controlling the reactor temperatures. Temperatures may vary from 40 to 140° F., it was explained.

Reactors are glass-coated inside, as are the agitators and cooling coils. The glass is fused on these parts while at a "cherry red" temperature of about 1,750° F. This special finish was applied by Glascote Products Co. of Cleveland which also supplied reactor vessels. All metal parts covered with glass are required to have a carbon content of less than 0.20% in order to insure proper bond

with glass under varying temperatures, it was pointed out.

Direct-expansion ammonia is used throughout this cooling process, which is under full-automatic control. All motors, starters, and control mechanisms are explosion-proof, it was stated, even including the electric-light sockets and extension cords. A complete fire-fighting system is installed.

It has been found that under conditions of light load the Frick pump-out compressor could handle a reactor carrying on a hot reaction, and it has accordingly had considerable use, it was noted. The large compressors are driven through static-conducting V-belts by



FOUR Frick 12 by 12 ammonia compressors which carry the main cooling load, seen from the front.



"CALGON® SCALE REMOVER is efficient and economical... I recommend its use"

James Douglas, Service Manager, A. S. Johnson Company, Washington 1, D.C.

Mr. Douglas of the A. S. Johnson Company has been using Calgon Scale Remover for the last two years in the cleaning of cooling tower systems of air conditioning equipment. Mr. Douglas says, "In all sincerity, I can say that we have found this product to be efficient and economical... and I feel justified in recommending the use of Calgon Scale Remover."

Mr. Douglas has also used Micromet® Plates for scale prevention and corrosion control. He has found that the use of Micromet Plates greatly reduces service problems. A. S. Johnson Company is one of a great many air conditioning and refrigeration service organizations who depend on Calgon's Big 3 to keep equipment efficiencies high and maintenance costs low.

Calgon Scale Remover makes it easy to clean up a system completely. Corrosion inhibitor protects system while in use. Special built-in pH color indicator shows how much of scale remover to use, and helps tell when system is clean.

Micromet Plates provide continuous treatment to inhibit further scale formation. A single

charge will last about six months, and the inexpensive feeding bag is easily installed. You merely hang the bags in the water spray.

Calgon Algaecide controls algae and slime growths. It comes in pellet form for convenience in handling. Positive action kills the growth. Periodic addition keeps equipment operating efficiently.



SEE YOUR REFRIGERATION WHOLESALER FOR CALGON'S BIG THREE!

CALGON COMPANY



A DIVISION OF HAGAN CHEMICALS & CONTROLS, INC. HAGAN BUILDING, PITTSBURGH 30, PENNSYLVANIA DIVISIONS: CALGON COMPANY, HALL LABORATORIES



WELDING the patented Frick direct-expansion coils, which were coated with glass before being installed inside the reactor.

Louis Allis totally-enclosed fan-cooled explosion-proof motors of 200 hp. each.

These compressors have fully-automatic capacity controls. This regulating system is said to be so sensitive that when the suction pressure varies as much

as 2 lbs. it will operate the capacity controls on the various compressors in a series of steps. Two of these compressors have automatic starting unloaders, including pilot-operated valves. The motors are started (Concluded on next page)

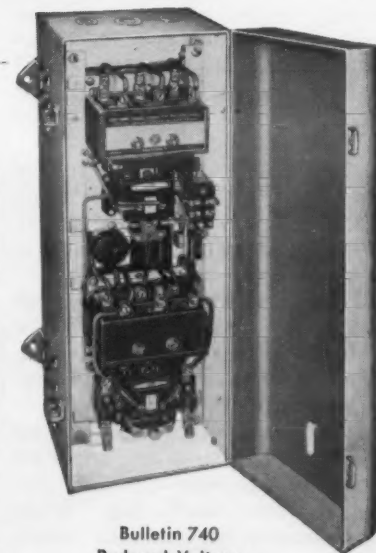
GIVE YOUR BIG COMPRESSORS AN EASY START

Use **ALLEN-BRADLEY Reduced Voltage Starters**

For your big compressors with a heavy flywheel load, install Allen-Bradley Bulletin 740 automatic compression resistance motor starters.

They will accelerate the motors from standstill to full speed without jerk or jolt. They are easy on belts, chains, or gears. Available up to 200 hp, 220-440-550 v. Write for catalog.

Allen-Bradley Co. 1313 S. First St., Milwaukee 4, Wis. In Canada—Allen-Bradley Canada Ltd., Galt, Ont.



Bulletin 740 Reduced Voltage Starter



The Sign of **QUALITY** MOTOR CONTROL

Rubber Plant -- To Test Centrifugal Fans at Texas Lab

(Concluded from preceding page) directly across the 440-volt lines. There is a special vault containing the transformers, starters, and other controls, it was indicated.

Each of the reactors has seven banks of vertical flooded cooling coils, with horseshoe-shaped headers for both suction and feed at the top, all being part of the patented Frick design (Patent No. 2,764,476). Special precautions were taken to have all corners of these coils and headers rounded, to facilitate coating with glass.

Polished stainless steel bolts, studs, and nuts were used. The ammonia liquid feed to these coils is a combination of float valves and Foxboro pneumatic valves, giving close temperature regulation. The suction from each coil is handled by means of a Hubbell back-pressure valve with an air diaphragm for still closer control. The process is usually continuous over a number of hours, and the plant often operates seven days each week.

8-In. Ammonia Suction Main

The ammonia suction main of this system is 8 in. in size, and the liquid main is 3 in. The condensing system is mounted outside in a special structural-steel framework, presents what is said to be an impressive sight. It consists of two desuperheaters for condensing any oil vapor in the ammonia without condensing any ammonia.

This cooled discharge gas then passes through two oil traps before going on to the condensers. There are four multi-pass shell-and-tube condensers, each 18 ft. long, with a 48-in. diameter by 18-ft. ammonia receiver. Each of these vessels is equipped with two type "AF" safety-relief valves, mounted above a dual-outlet valve.

Accumulator Traps Returning Liquid

Any liquid ammonia returning in the suction main is trapped by a 60-in. by 9-ft. accumulator, located above the engine room roof. This accumulator contains approximately 1,000 ft. of extra-heavy coils, through which the warm high-pressure liquid ammonia passes on its way from the receiver to the reactor coils. Any cold liquid trapped in the accumulator and not evaporated by the coil is returned to the receiver by a two-stage Frick timed-gear liquid refrigerant pump, it was explained.

The control boards, which are installed in both the engine room and the reactor room, contain all the necessary indicating and recording gauges for pressure and temperature.

DETROIT—The fan testing laboratory operated by the Texas Engineering Experiment Station, an activity of the Texas A. & M. College System, is the first to be approved by the Air Moving & Conditioning Association (AMCA) as a qualified neutral laboratory for testing centrifugal fans in accordance with the association's Standard Test Code and Laboratory Standards.

Use of this laboratory's facilities will be recommended to

AMCA member companies which manufacture centrifugal fans. Association approval was granted following an inspection made during actual tests of a special centrifugal fan, it was noted.

The laboratory—at College Station, Texas—has been in operation since 1939 for research and development of mechanical air moving equipment. Centrifugal fans up to and including a double width, double inlet type with a 50-in. discharge duct may be tested.

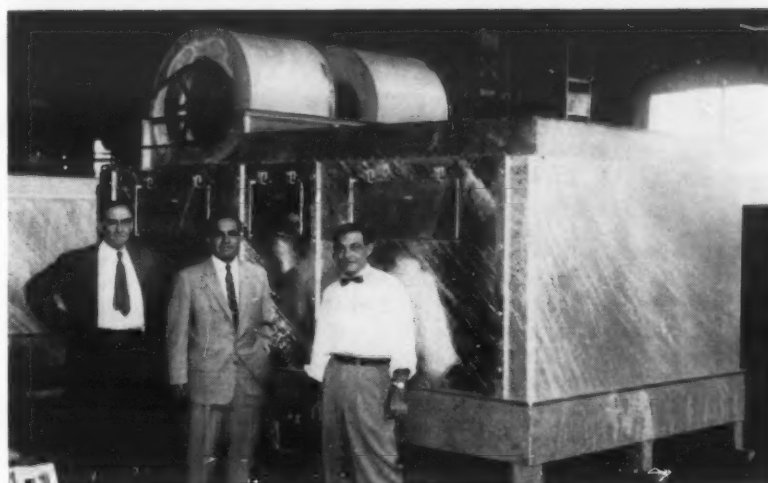
Recold Moves Houston Office

LOS ANGELES—Recold Corp.'s southwest district office has moved into new quarters at 2411 Times Blvd. in Houston, Texas, reports H. T. (Hy) Jarvis, president of Recold.

J. C. Lewis, Recold's southwest district manager, covers

Texas, Oklahoma, New Mexico.

Recold also recently announced an expansion of activity by appointing W. Les Werner as northwest district manager covering northern California, Oregon, Washington, and western Canada.



Drayer-Hanson's Largest Evaporative Condenser

RECAPPING final shipping detail on largest evaporative condenser, 112 tons, made by Drayer-Hanson at the firm's main Los Angeles facility are l. to r.: Barry Benson, export manager; Arthur Banuelos, manager, Del Mar Shipping Co.; and Fred Savaglio, D-H plant manager. Routed to Singapore, the unit follows a 14-unit shipment of the same type of equipment to Saudi-Arabia. Del Mar handles west coast shipments for D-H. All foreign trade funnels through Benson whose office is near the main-plant in Los Angeles.



design for efficient operation



GOING AROUND IN CIRCLES ABOUT COPPER TUBE?

... then why not join the growing list of America's leading manufacturers of air conditioning and refrigeration units and coils ... who specify VIKING when they need uniformly perfect thinwall copper tubes?

In one of the most modern plants in the industry, specifically designed and constructed for the fabrication of thinwall copper tube, VIKING has pioneered new automatic production and testing methods ... assuring superior quality, accuracy, uniformity and finish in VIKING Copper Tube—superiority that is being constantly translated by fabricators into lower costs and more efficient operation.



VIKING

PRECISION DRAWN SEAMLESS COPPER TUBE

EXTRA WORKABILITY

The proper kind of temper is vital in tube used for refrigeration and air conditioning purposes. VIKING Copper Tube has been produced with the best available annealing and tempering equipment, thus assuring perfect fabricating.

ABSOLUTE, UNVARYING STRAIGHTNESS

A battery of straightening machines keeps VIKING Copper Tube absolutely, unvaryingly straight. In addition, these machines precisely temper the tube, imparting to it the correct surface hardness ... assuring ease in fabrication resulting in substantial savings in time and labor.

ELECTRONIC QUALITY CONTROL

An electronic "Grain" detects the minutest flaw or imperfection in the walls of VIKING tubes ... automatically discarding defective tubes. Trouble-free fabrication is virtually guaranteed—operational failures almost completely eliminated.

COPPER TUBE CO.

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MICROMOTORS
One of largest stocks
in the world!
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6318 Cambridge, Mpls. 16, Minn.
West 9-6794

Thermal Efficiency of Insulation-1

How To Meet Moisture, Condensation Problems

By C. Q. Livingston, Industrial Insulation Dept.,
Building Materials Div., Armstrong Cork Co.

Of the many physical characteristics of an insulation, the conductivity or conductance—the thermal efficiency—is generally of most concern. Unfortunately, this characteristic seems to be the least understood.

First of all, we are reminded that the thermal conductivity or "k" value is an expression of the amount of heat that will flow through 1 sq. ft. of a homogenous material 1 in. thick

over a period of one hour when the temperature difference between the hot and cold face is 1° F.

Note that in this definition we have considered thickness, area, time, and temperature. These elements have been standardized in the industry, expressed as the "k" value in terms of B.t.u.-in./sq. ft.-hour-degree F., and there is little chance of misinterpretation in this connection.

However, it is important to understand that there are factors which materially affect the conductivity or thermal efficiency and these must be taken into consideration in evaluating a product. The more important of these items are the effects of temperature, convection, and moisture.

VARIATION OF 'K' VALUE WITH MEAN TEMPERATURE

Discussing them in this order, the conductivity varies appreciably with temperature. This is an

Insulation becomes more in demand every day in both refrigeration and air conditioning. This article, being published in two parts, offers an excellent explanation of what thermal efficiency really is and how to measure this "k" factor, as it is known in the industry.

Moisture and condensation are often baffling. This writer lets us in on the problems and the best way to meet them, as he presented the subject in San Francisco at the Refrigeration Service Engineers' Society regional educational forum.

experimental fact. That is, the heat flow through a given material is lower at lower temperatures and greater at the higher temperatures. Therefore, the operating temperature of the equipment in question must usually be considered in selecting the insulation and in establishing the thermal efficiency.

Theoretically in publishing the conductivity value of a product the mean or average temperature at which the value is given should be stated.

Unfortunately, our industry has not been standardized to this degree. Too often the "k" value is published without any reference to mean temperature.

In the refrigeration range of temperatures, disregard of this factor could very well result in a variation of efficiency approaching 10 to 20%. In the case of sub-zero installations this could amount to 1 to 2 in. of insulation and conceivably thousands of dollars depending upon the size of the job.

Thus it is important to make your comparisons of conductivity values at the same mean temperatures.

EFFECT OF CONVECTION AND MOISTURE ON THERMAL EFFICIENCY

The effect of temperature on thermal conductivity is a characteristic of the insulating material itself. It's just a matter of taking this into consideration in initially selecting a material. How the factors of convection and moisture alter the thermal conductivity, however, are in many cases more closely related to the installed material.

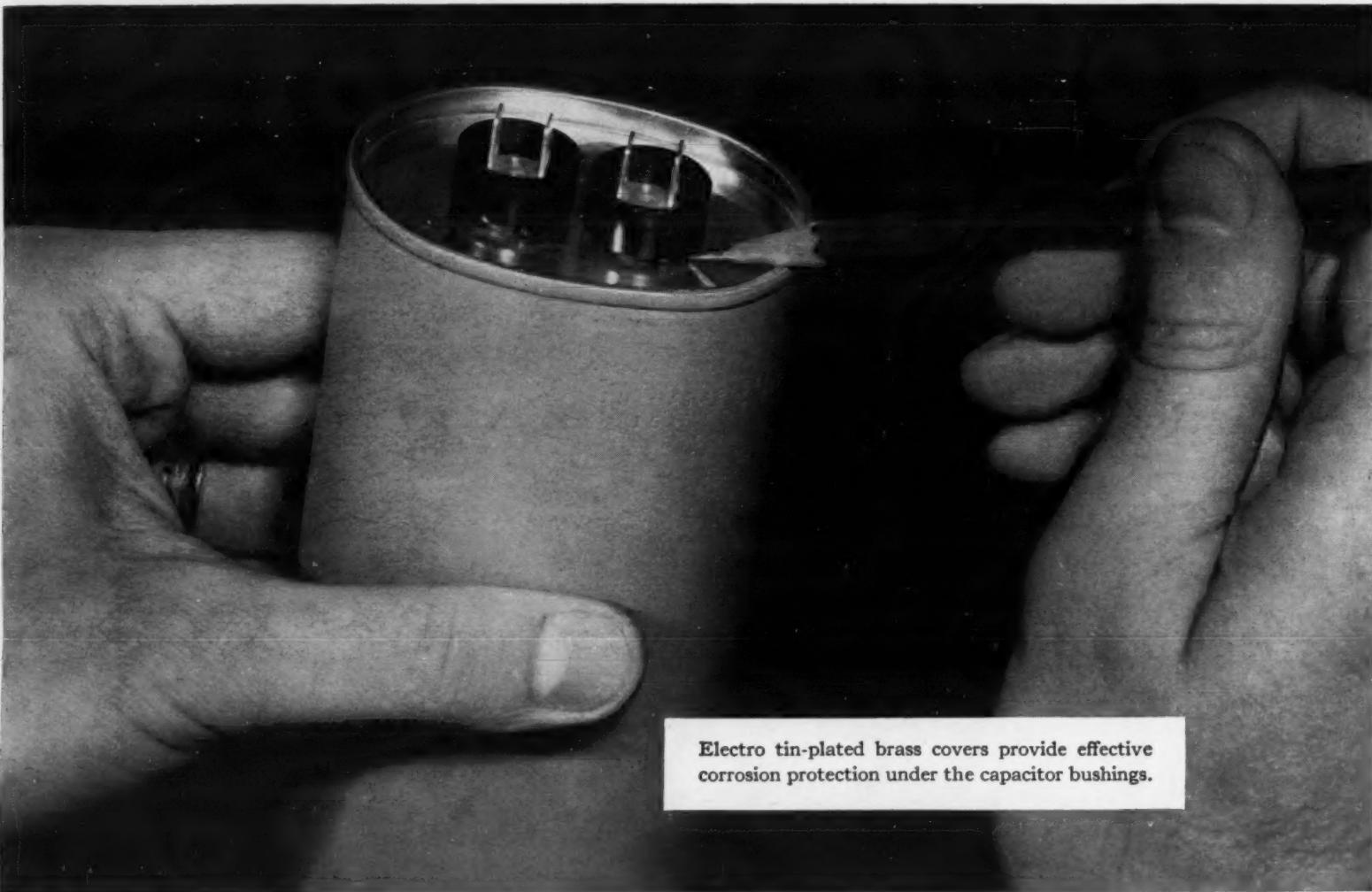
In other words, although reliable published thermal conductivity values may be used in designing a particular insulation job, this does not necessarily mean that the operating efficiency can be predicted.

In determining our published figures it must be remembered that the tests are conducted on small, bone dry samples and the heat transfer by conduction only is measured and reported. These are ideal conditions we know, but necessary in order to have a sound basis for comparison.

In practice, unless the insulation is properly installed, heat transfer by convection and the introduction of moisture into the insulation can alter the efficiency appreciably.

It is thus oftentimes necessary to consider the in-place efficiency or "effective conductivity" rather than the published "k" value.

In typical cold room construction, for example, we have found cases where air convection within the insulation accounted for variations in efficiencies in the
(Continued on next page)



Electro tin-plated brass covers provide effective corrosion protection under the capacitor bushings.

New covers give General Electric Capacitors

EXTRA PROTECTION AGAINST CORROSION

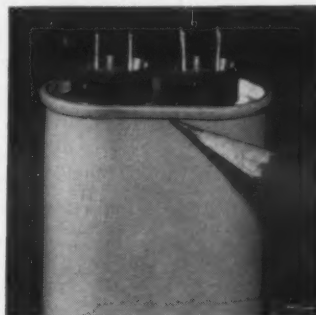
Now electro tin-plated brass covers are available on General Electric's complete line of capacitors for air conditioning units. Combined with Granite-Gray case paint, these new covers give G-E capacitors more than four times the corrosion resistance of the previously used finish.

NEW CORROSION-RESISTANT COVERS provide maximum protection for normally inaccessible areas: under the bushings and at the double roll seam. The electro tin-plated brass covers seal off these "trouble spots" from the harmful effects of corrosive atmospheres.

GRANITE-GRAY PAINT, used on the case of the capacitor, has been life tested in a 20 percent salt fog atmosphere for 1000 hours at 95 degrees Fahrenheit. Test results showed absolutely no indications of corrosion. This durable paint gives longer life

for your General Electric capacitors, even under the most adverse climatic conditions.

THE NEW COVER AND CASE PAINT are listed by the Underwriters' Laboratories and are available on all G-E capacitors for air conditioners. For more information about these protective features, contact your nearest General Electric Apparatus Sales Office. Or write for bulletin GEA-5895, "Capacitors for Air Conditioning Equipment." General Electric Co., Section 448-2, Schenectady, N. Y.



Durable Granite-Gray paint effectively resists corrosion on the capacitor case and at the double roll seam.

Progress Is Our Most Important Product

GENERAL  ELECTRIC

For more information about products advertised on this page use Information Center, page 18.

Looking for
a Business to Buy . . . ?

Check the
Business Opportunities
Section
in the classified
advertising columns.



SELECTION OF INSULATION THICKNESS

Now that we have discussed how the insulating efficiency can vary and what can be done about it, let's consider its practical applications.

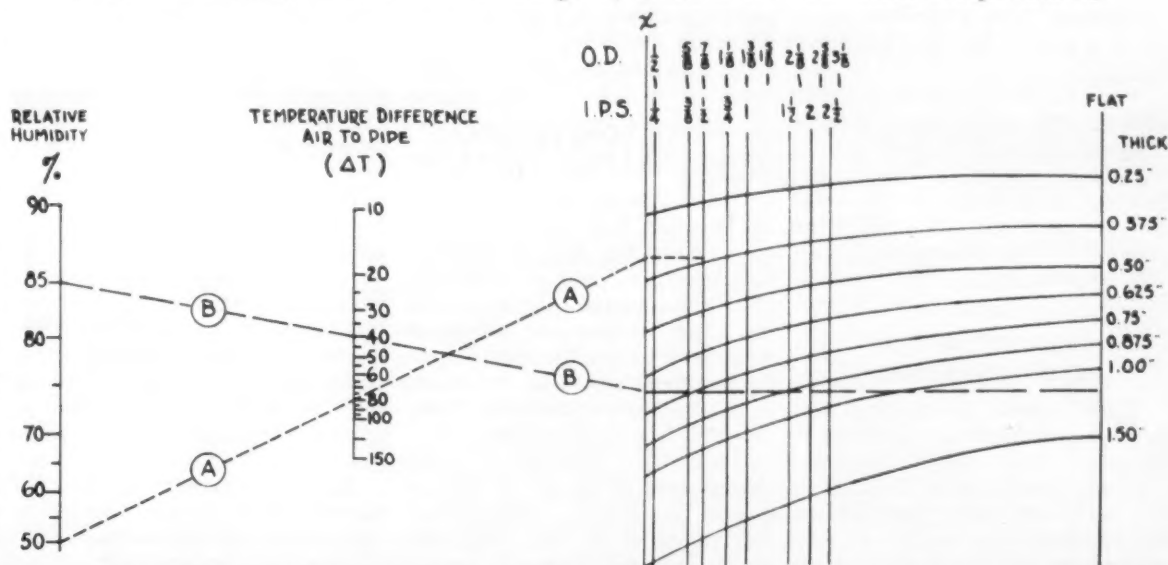
Low temperature insulation is used primarily in the below 40° F. range of temperature to minimize heat transfer.

In the early days, when the refrigerating equipment was less efficient, electrical power more costly, and the basic types of insulation very cheap, it was the practice of industry to keep heat gain to a minimum by piling on the insulation.

In more recent years, however, this picture has changed somewhat. The cost of removing a B.t.u. has decreased while both the cost of basic insulation and the labor to apply it has increased two and three fold.

It's surprising, however, how often old industry standards are still followed—in many cases

FIG. 1—Insulation Thickness Selector
(Thermal insulation with "k" in range of 0.27 at 70° F. mean temperature.)



"IT IS thus oftentimes necessary to consider the in-place efficiency or 'effective conductivity' rather than the published 'k' value," advises Livingston.

(Continued from preceding page) range of 50 to 100%.

It's satisfying to know, however, that such extremes are only encountered under the very poorest design conditions. If proper precautions are exercised, practically all types of mass insulations, fibrous as well as cellular, can be installed without encountering this problem.

Primarily it's a case of effecting an air barrier on both sides of the insulation.

The fact remains, however, that in poorly designed structures, and even in the case of piping and ductwork to some degree, excessive heat flow due to convection can be significant. It could, in some cases, explain both higher than expected operating costs or limited operating temperature.

You're probably generally familiar with the tendency for moisture to migrate into the insulation in the form of vapor, reach a dewpoint in the insulation, and condense to liquid water at this point.

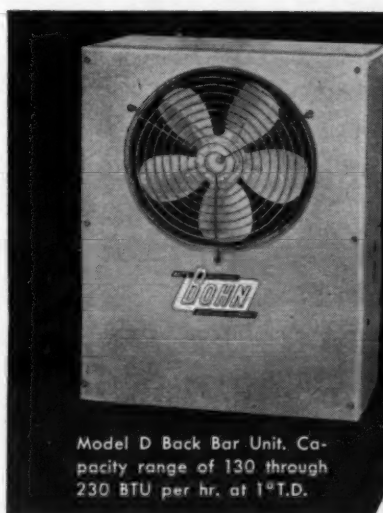
Water has a conductivity of about 10 to 15 times that of the average insulating material. It is understandable then that wet insulation is relatively inefficient. In practice, such moisture pickup has been found to result in thermal efficiencies as low as one half those based on published "k" values.

What does all this mean from your point of view? As in the case of convection, it is important to recognize that the "in-place" efficiency of thermal insulations can be far different than designed unless proper precautions are taken in erecting the material.

From the practical point of view, it means that because of the joint problem, even for the insulation that is itself impermeable to moisture, an effective vapor seal must be used on the warm side to maintain the efficiency expected on the basis of the published "k" values.

with no justification whatsoever other than that it had been the practice in the past. It is suggested, therefore, that you be sure and keep this point in mind in designing new installations. Usually you'll find the manufacturers of the insulations publishing heat transfer values for typical construction on the basis (Continued on next page)

BOHN Products



Model D Back Bar Unit. Capacity range of 130 through 230 BTU per hr. at 1° T.D.



Model UC Unit Cooler. Capacity range of 260 through 2000 BTU per hr. at 1° T.D.

Model HR Half Round. Capacity range from 260 through 1080 BTU per hr. at 1° T.D.

for Commercial Refrigeration

rugged • lightweight • grained aluminum cabinets

Better refrigeration equipment than ever before . . . at low cost . . . backed by BOHN quality and service.

Outstanding features include grained aluminum cabinets . . . rust proof fittings . . . full collar aluminum fins and copper tubing . . . reliable BOHN capacity ratings . . . life lubricated motors.

The new Model D is the ideal universal unit for all types and sizes of back bars. Model UC features built-in liquid distributor and patented air direction louvers. Model HR features a quick cleaning filter, a double drip hinged pan which prevents sweating, and air direction louvers formed in the fins.

Be sure of fine construction and economy. Write today for complete details on these and other models.

- No Scratch
- No Rust
- No Paint

BETZ DIVISION
BOHN
DANVILLE, ILLINOIS

Manufacturers of Commercial Refrigeration, Industrial Air Conditioning and Special Heat Transfer Surfaces

BOHN ALUMINUM & BRASS CORPORATION • BETZ DIVISION • DANVILLE, ILLINOIS

For more information about products advertised on this page use Information Center, page 18.

wanted



TURBINE VENTILATOR

- DEALERS
- DISTRIBUTORS
- AGENTS

TRIANGLE ENGINEERING CO.

1307 Ashland • Houston 8, Texas

Thermal Efficiency of Insulation--

(Continued from preceding page) of unit area, time, and temperature.

For the job in question, if the precautions mentioned earlier are exercised, it is just then a matter of extending these units. With a knowledge of the total costs of refrigeration, the most economical thickness of insulation can be quite easily established.

PREVENTION OF CONDENSATION

Unlike those operations that involve extremes in temperature, however, insulation in the comfort air conditioning field, both for ducts and piping, can seldom be justified as a matter of economics in the sense that significant savings in power or machine size can be effected.

Rather, here the purpose of insulation is primarily to pre-

vent condensation and the costly damages that so often result from condensation in concealed areas.

WHAT COMPLICATES CONDENSATION PROBLEM

Unfortunately, in the interest of keeping the insulation cost to a minimum, this problem of condensation is considerably more complicated than determining the insulation thickness necessary to meet a specific predetermined heat loss value, as is so often the criteria for lower temperature applications.

Generally relatively small thicknesses of insulation are required to prevent condensation. But in areas of very high humidity, the requirements become very much greater. As 100% relative humidity is approached, no reasonable amount of insulation will suffice.

The key to the thickness requirement then is the ambient air conditions—both dry-bulb and wet-bulb temperature or relative humidity.

What these conditions are assumed to be I believe account for the wide discrepancies found in manufacturers' recommendations.

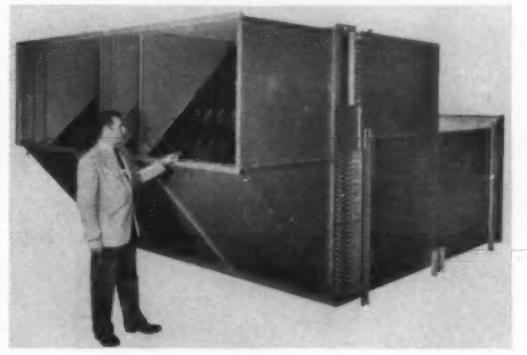
It must be extremely confusing to you, for example, to find one product possessing a "k" value of 0.7 being advertised to prevent condensation when applied in an $\frac{1}{8}$ -in. thickness while another product, almost three times as efficient at a "k" of 0.25 is being recommended in $\frac{1}{2}$ -in. thickness for this same purpose.

As the difference in cost of these items is also naturally quite wide and the consequential damage in the event of failure always a serious added risk, I would like to acquaint you more thoroughly with the problem.

(To Be Continued)

Unit Has 58 Sq. Ft. of Coil Face

GRAPHIC illustration shows Recold Corp.'s new MZH-580 air handling unit which has capacity of 35,000 c.f.m. and 58 sq. ft. of coil face covering the cooling range of up to 100 tons. Dave Tomblin of the design engineering department indicates the UV-580 vertical draw through unit, UH-580 horizontal draw through, and MZH-580 blow through units with individual zones are available.



Dealer's 'Discriminatory Action' Suit Charges Anti-Trust Law Violation

PITTSBURGH—N. L. Stuver, owner of Stuver's Appliance Service, Johnstown, Pa., has filed suit in Federal court against General Electric Supply Co. here, charging discrimina-

tion against him and in favor of his competitors.

This action by the division of General Electric Distributing Corp. brought losses in sales and profits, forcing him to discontinue his business, and causing him damage in excess of \$100,000, Stuver claims.

He asks judgment for \$300,000 treble damages, interest costs, and attorneys' fees in a jury trial.

Complaint charges that during the time plaintiff was a Hot-point franchised dealer from Jan. 15 to Dec. 31, 1953, as contracted by defendant, there were violations in the U. S. anti-trust laws in connection with discriminatory pricing and advertising of defendant's merchandise which helped plaintiff's competition, while plaintiff was forbidden to sell at less than the suggested list price.

On stipulation, Judge John L. Miller ordered an extension of time to file answer to Sept. 28.

Baltimore, Washington Forming Separate ASRE Sections

WASHINGTON, D. C.—After almost 20 years of association, Baltimore and Washington refrigerating engineers have voted to dissolve the Baltimore-Washington Section of the American Society of Refrigerating Engineers and form a new section of ASRE in each city.

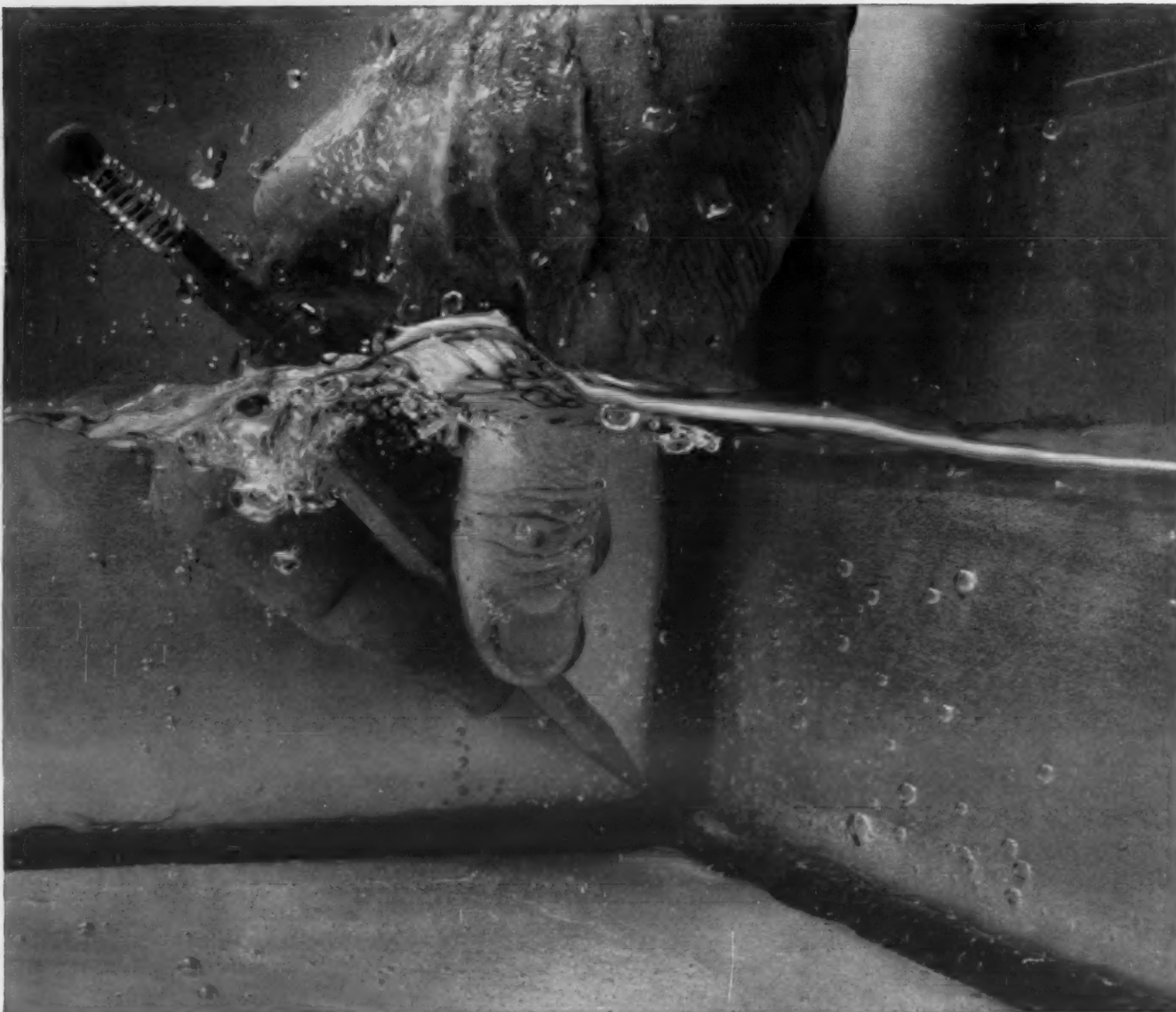
The new Washington Section will have its initial meeting at the Caruso restaurant, 427 11th St., N.W., on Oct. 1, at which time a new charter will be presented by one of the national ASRE officers.

A cocktail and dinner hour is planned at 6 p.m., but the group urges all those interested in its technical programs to attend the meeting whether or not they attend the dinner. Meetings, which are open to the public, will be held in a special room which will comfortably accommodate 100 people. A special parking lot has been reserved for the meetings.

On the program will be a color movie, presented by the Bethlehem Steel Co., describing construction of the Chesapeake Bay bridge at Annapolis, Md., and a talk by William G. Carlisle, manager of training and education, Bell & Gossett Co., on "Selection and Sizing of Centrifugal Pumps for Heating, Cooling, and Tower Applications."

Henry Sweeney is chairman of the new section.

Even under water EC-373 seals stay moisture-tight



WATER CAN'T LEAK OUT TO RUIN AIR CONDITIONER PERFORMANCE WHEN LEAK-PROOF EC-373 SEALS THE SEAMS OF CONDENSATION PANS.

Exceptional water resistance?

EC-373 has it. This 3M sealer locks seams moisture-tight, guards air conditioner efficiency completely.

In fact, even after 500 hours submerged in a 140°F. detergent solution, EC-373 adheres tightly to metal, seals without leaking. What's more, EC-373 stays elastic but firm despite -25°F. cold or +250°F. heat. Vibration can't break this tough, flexible sealer.

The result—a leak-proof, lasting seal that keeps insulation dry, prevents freeze-ups or water seepage onto the floor.

And you can apply EC-373 fast and easily by pressure gun, flow gun, hand caulking gun, brush or spatula. There's no sag.

SEE WHAT 3M ADHESIVES CAN DO FOR YOU! Consult 3M Research. Contact your 3M Field Engineer. Or for information

and free literature, write on your company letterhead to: 3M, Dept. 139, 417 Piquette Ave., Detroit 2, Mich.



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IAEL Announces Tentative Program for Annual Conference Oct. 2-4 In Cincinnati

NEW YORK CITY—The International Association of Electrical Leagues has announced a tentative program for its 22nd annual conference to be held at the Sinton hotel in Cincinnati Oct. 2-4.

John Biggi, corresponding secretary, said all general sessions will be held in the Rookwood Room of the hotel and are open to all members of the electrical industry interested in league movement.

Attendance at the Friday, Oct. 4, afternoon business session is limited to authorized representatives of IAEL member organizations.

Keynote address of the conference will be delivered by Don E. Rosenthal, IAEL president, Wednesday morning, Oct. 2.

Among other talks to be given Wednesday will be one by J. Rushton of Frigidaire on "Looking Ahead In the Major Appliance Field" and another by E. A. Snyder, manager, sales division, American Gas & Electric Co., New York City, on "Opportunities for Industry Promotion of Residence Heating."

One of the presentations scheduled for Thursday is a panel discussion on "Revolutionary Trends In Merchandising of Electrical Appliances." The panel will include Mort Farr of the National Appliance & Radio-TV Dealers Association and editors.

A sightseeing tour of Cincinnati is scheduled for Thursday afternoon and the annual banquet for that evening.

Friday morning's program will be devoted to reports on National Electrical Week, the Housepower Program, and the Live Better Electrically project, and a discussion of local tie-in activities.

A panel discussion on "How Our League Operates" will spark the final session Friday after-

noon. W. H. Johnson, Jr., manager, Appliance Merchandisers Association, Phoenix, Ariz.; A. L. Maillard, president, Electric League of Indianapolis; G. L. Cane, secretary-treasurer, Sacramento Valley Electric League; Harry J. Foy, manager, Electric Service League of Ontario; and J. G. Waddell, managing director, Electric Institute of Boston, will be panel members.

Annual business meeting follows at 4 p.m.

At the luncheon on Wednesday, the speaker will be Walter C. Beckjord, president, Cincinnati Gas & Electric Co. George C. Young, president and general manager of the Cincinnati Better Business Bureau, will talk at the Friday luncheon, according to the announcement.

Bonus Checks Assure Capacity Crowd at Open Houses

CAMBRIDGE, Mass.—Northeastern Distributors, Inc. assured a capacity crowd at their carnival of merchandising recently.

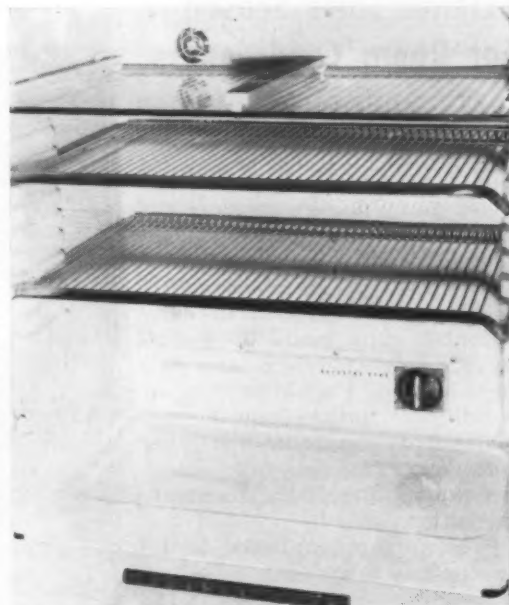
The Norge distributor issued a \$1 bonus check to dealers for each unit purchased between June 12 and the mid-July open house.

The bonus checks were mailed with the invoices as shipments left the distributor's warehouse. Dealers could redeem them for cash only during the distributor's open house.

Mandy Green, sales manager of Northeastern's Norge division, said "the bonus checks helped to clear our inventories as well as to build dealer excitement for two successful open houses."

Westinghouse 'Cold Injector'

Top models in the 1958 Westinghouse refrigerator line have a "cold injector" in the conventional refrigerator compartment which is designed to chill the foods and beverages more quickly, and to maintain cabinet interior temperatures at a more uniform level. A 20 c.f.m. (at right bottom) fan, located at the right bottom of the cabinet interior, draws air from the storage area over a cold plate and forces it out at the top, just above the "cold injector" panel, on which is mounted the manually adjustable temperature control.



PERFECT PAIR FOR LONGER WEAR ...and smooth refrigerant flow!




CHASE® copper refrigeration tube and solder-joint fittings!

Here's a cool couple: Chase Copper Refrigeration Tube and Chase Wrought Copper Solder-Joint Fittings. Together, they're the basis of refrigeration and air-conditioning systems that combine the utmost in durability and dependability.

Close O.D. and I.D. tolerances assure uniform expansion and contraction. No rough shoulders or surfaces to slow down circulation—coolants flow smooth and easy, *always!*

Your nearby Chase wholesaler stocks Chase extra-soft Refrigeration Tube, Chase TYPE L Copper Water Tube and Wrought Copper Solder-Joint Fittings to meet your every need. He's the man to contact before starting your next installation!

Chase 
BRASS & COPPER CO.
WATERBURY 20, CONNECTICUT
SUBSIDIARY OF KENNECOTT COPPER CORPORATION

The Nation's Headquarters for Brass, Copper and Stainless Steel
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SPRING COMPENSATED!
LIQUID INDICATORS

E-Z-SEE Liquid Indicators with spring-compensated gaskets are positively leak-proof—proved by hundreds of thousands now in use. Suitable for Freon-12 and Freon-22 to pressures of 500 psi.

AVAILABLE TO THE TRADE THRU WHOLESALEERS EVERYWHERE

REMCO INC.
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Thinking of—

- changing territories
- expanding your territory
- taking on new lines—

Check the
CLASSIFIED ADS

Your opportunity may
be there.

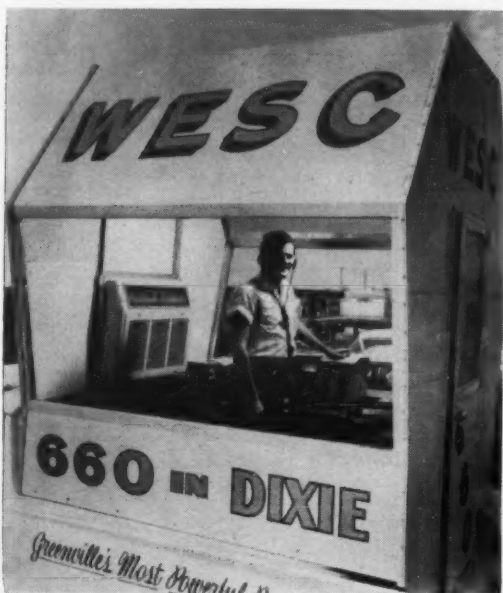
Hay Fever Promotion Extends Sales Season For Room Conditioners

ST. LOUIS—Hay fever has been "put to work" selling room coolers for Schweig-Engel Co. here, producing good results when many dealers consider the air conditioner market completely dead.

In two 5 by 10-in. advertisements in a metropolitan daily recently, copy read, "Now . . . at Schweig-Engel Co. the new health-giving Philco Ionitron air conditioner brings you blessed relief from hay fever and other allergies." This was followed by an explanation of the Ionitron's operation.

The promotion, timed to hit as the hay fever season—severe in this area—reached full strength, has brought sales "better than in the regular season," it was stated.

Cooling the 'Country Earl' The Squire on the Wire'



POPULAR Greenville, S. C. disc jockey "Country Earl—The Squire On the Wire" makes use of the station WESC's new air conditioned mobile studio, built by the mobile homes department of Rimer, Inc., Greenville. Design of the studio allows ample space for the performer, provides two large viewing areas for broadcast watchers and still is small enough to be mounted on a pickup truck. The air conditioner is a Chrysler Airtemp "Imperial" all-in-wall model, selected after the owner of Rimer, Inc. observed it cooling the isolation booth on the \$64,000 Question TV show.

June Room Air Conditioner Sales Were 131% Above Last Year In Florida Area

MIAMI, Fla.—Florida Power & Light Co. reported that unit sales of air conditioners in June in the areas it serves soared 131% over the same month of 1956.

The utility's report shows sales to retail dealers in FPL-served areas as reported by state wholesalers. Also included are sales by department and chain stores and some retailers who purchase their merchandise from sources other than state wholesalers.

June air conditioner sales amounted to 8,030, compared to 3,481 sold in June, 1956. Total sales for the first six months of this year rose to 26,765 from 15,959 in the like year-ago period, an increase of 68%.

This was contributory to the

June sales record of a total of \$9,905,803 worth of domestic equipment, surpassing sales in any month of any previous year since the present method of reporting was started. FPL stated that percentage-wise, this exceeded June, 1956 sales volume by 62%.

Sales of domestic electrical equipment for the year to June 30, totaled \$46,874,263, 14% over the same period of last year.

Dehumidifiers came in for a month-of-June sales increase of 142%. Totals were 126 for 1957, over 52 for 1956. The first six months' sales were 399 this year compared to 183 in 1956, a gain of 118%.

Home freezers also made an impressive climb in unit sales for June, reaching 42% above last June's figure with 543 sold in 1957 and 383 in 1956. However, sales in the first half of this year dropped to 2,115 from 2,655 in the corresponding year-ago period.

Domestic refrigerator sales in the month of June soared 91% above June sales of a year ago, with a total of 6,877, almost doubling the 3,591 figure for the month a year ago. The total sales of this item to June 30 was 31,118 this year as against 24,766 for the 1956 period, a gain of 26%.

Tenn. Area Room Unit Sales Up for 2 Months

CHATTANOOGA, Tenn.—Air conditioner sales records have fallen in two consecutive months in the area served by the Electric Power Board of Chattanooga, with July sales far exceeding combined sales of the next four best-selling appliances for the month.

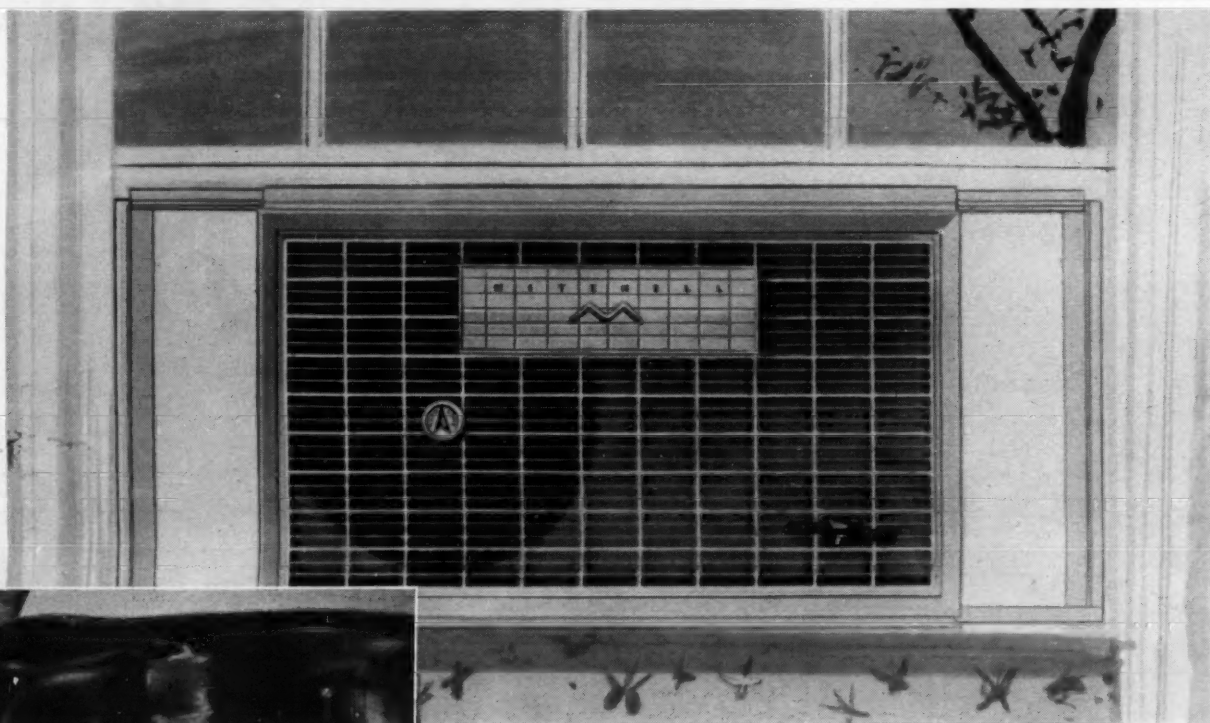
The dealers' monthly sales report compiled by EPB shows July sales of air conditioners for domestic use reached a high of 2,974, topping the record of 2,229 set in the previous month. June air conditioner sales likewise far surpassed the 628 figure reported for May.

The July volume represents a total dollar sales value of \$773,091.30.

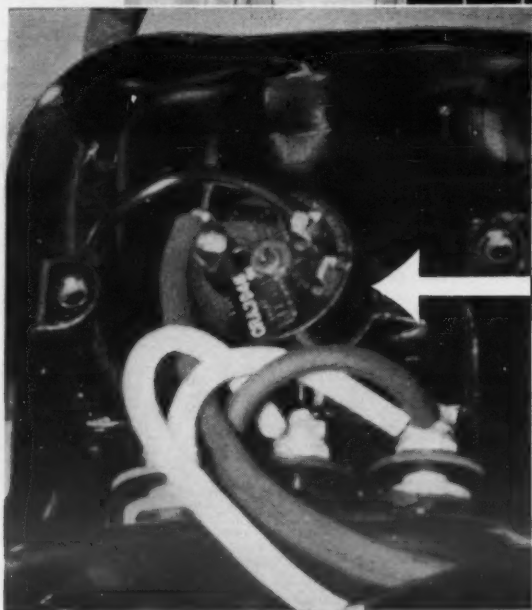
Of the 45 heat pumps sold in July, 28 were for domestic use and 17 were for commercial application. Total dollar heat pump business was \$73,985.

July sales in household refrigerators came to 503, for a total dollar value of \$155,904.85. Home freezers sold totaled 360, representing a dollar value of \$156,564.

The utility also reported sales of 95 commercial air conditioners with a dollar value of \$241,770.54, during the month.



The new Mitchell Room Air Conditioner which always delivers maximum safe cooling capacity thanks to a Klixon protected compressor.



Mitchell Air Conditioners deliver maximum safe cooling capacity

... thanks to KLIXON Motor Protectors

Here's what Mr. Frank Scire, Chief Engineer, has to say . . .

"We want people who buy Mitchell Air Conditioners to get all of the available cooling capacity of the machine — particularly under abnormal conditions which can come up from time to time and cause compressor motor overloading.

"That's why we endorse Klixon inherent overheat motor protectors. We know from experience that Klixon Protectors will always keep our air conditioners operating at maximum capacity and with minimum service requirement and burn-outs."

That's how engineers at

Mitchell Air Conditioning feel about Klixon Motor Protectors — one more manufacturer that is helping build and maintain a high product reputation with Klixon Motor Protectors.

You, too, can get maximum safe capacity in both single and polyphase equipment by simply specifying Klixon built-in protectors when you order motors. Your motor supplier's nearest district office will gladly handle the details. If you wish to have literature, we'll send it promptly.

METALS & CONTROLS CORPORATION
Spencer Thermostat Division 2409 Forest Street, Attleboro, Mass.
KLIXON

Get Your Share of Winter Profits!

on Room Air Cond. Covers

Send for the New 1957 Directory & Alphabetical Guide

Top Quality, Low Prices, Excellent Markup

JIFFY COVERS CORP.
614 Third Ave., N.Y. 16, N.Y.

Pamphlet Parries Protests

Brochure Wins Tenant, Employee Cooperation When Office Building Adds Air Conditioning

LOS ANGELES — "Harmonious tenant relationships are nine-tenths a matter of good communication," says Robert A. Sheehan, building manager of the Pacific Mutual Building, now being air conditioned.

Complex problems of installing a \$1,250,000 air conditioning system in an existing office building could easily strain even the best tenant-owner relationships. Yet Pacific Mutual Life Insurance Co. is actually turning such an initial period of construction inconvenience into a positive public relations advantage.

Rather than wait till the appearance of gaping holes in walls and construction equipment in corridors brought forth a deluge of questions and complaints, Sheehan beat trouble to the punch.

One morning as construction was just getting under way, tenants, their employees, and some 1,000 Pacific Mutual home office employees arrived to find on their desks a handsomely decorated brochure announcing and explaining the new air conditioning plan.

The folder explained in easily understandable terms what new air conditioning would do, how it would look, how long it would take to install, and answered a multitude of other questions of interest to those working in the building. It pointed out, for instance, that unduly noisy or messy work would be done at night.

Helped Tenants Appreciate Expense

According to Sheehan, by far the most valuable effect of the brochure was in getting across to tenants an appreciation of the tremendous cost. The current Pacific Mutual Building project is believed to be the largest air conditioning system ever installed in an existing building in the west.

"The folder also gave us a means to publicly acknowledge work of engineers, architects, contractors, and manufacturers who play such a vital role in making the job possible," Sheehan said. "Then, too," he explained, "you'd be surprised how much more people appreciate air conditioning when they realize the great number of specialists required to create it."

Poster Aids Campaign

In addition to brochures distributed directly, Sheehan arranged for a large poster near the main bank of elevators on the street level. The poster apologized for any temporary inconvenience and displayed a packet of air conditioning brochures to be picked up by those interested.

Pacific Mutual's unique approach has proven so successful that the Downtown Business Men's Association, Associated Building Managers of Los Angeles, and the Building Owners and Managers Association have all requested copies for mailing to their entire memberships.

To date, Sheehan has received

numerous complimentary letters and phone calls from tenants telling him how much they appreciate being taken into confidence. So far, the first complaint is yet to come, he said. This is in spite of the fact that rents will be increased to meet the cost of installation and maintenance.

Major Equipment Installed On Roof

All major mechanical equipment will be located on the roof of the 12-story building. Four 60-hp. and one 100-hp. high pressure silent fans will circulate conditioned air through the

system. The air passes first through dust filters which eliminate all dust and other particles and then through the activated carbon filters which remove condensable gases, including the major cause of eye irritation on smoggy days.

The clean filtered air then passes over a series of coils, some heated to 120° F. by steam and others chilled to 50° F. by cold water. Air thus heated or chilled is delivered by separate ducts to be blended in each room or office to the proper temperature for any time of year.

Two 600-ton Trane refrigeration units supply chilled water

for air cooling. The building's three 250-hp. steam boilers will be integrated into the system, providing more than adequate heat for cold weather. Steam generated will be piped from the basement to the roof where actual air heating will take place.

Air will be distributed in each room by blender boxes, located beneath the windows. Blender boxes will mix hot and cold air blending it for the desired temperature.

Supply air ducts will appear as columns between the windows. Air will pass through fixed

transoms into the corridors from which it will be drawn into strategically placed "risers." It will be carried to the roof to begin again the filtering, cooling or heating, and recirculation, along with new air from the outside.

Behind the building's new air conditioning system is J. L. Hengstler, engineer with 22 years' specialized experience in the air conditioning field. Prime contractor for the installation is the Climate Air Conditioning Co., a division of Paul Hardeman, Inc.

Los Angeles Engineer, Contractor Moves

LOS ANGELES — Stanley Feuer Co., air conditioning engineer and contractor, recently announced its move to a larger plant in order to keep pace with its growing sales and installation volume.

Founded in 1948, the com-

pany has consistently doubled its business year so that it now requires 22,500 sq. ft. of facilities.

The new plant at 3380 S. Robertson Blvd. here will be adjacent to the projected West-side freeway.

The PERFECT FOURSOME for ALL Air Conditioning Installations

...FOR COMPLETE RELIABILITY and ACCURATE CONTROL...



Sporlan
has a foursome
to take care of
any
air-conditioning
installation...
large or small

The SPORLAN CATCH-ALL Filter-Drier will protect the entire system from moisture...acid...sludge and foreign substances found in many systems.

SPORLAN SOLENOID VALVES...The power packed Blue Seal Coil minimizes the possibilities of electrical failures. The simplicity of design and sturdy construction afford Peak Performance always.

SPORLAN THERMOSTATIC EXPANSION VALVES for air conditioning... The famous Flow-Master element practically eliminates valve hunting and the worry of alternately flooded and starved evaporators.

SPORLAN REFRIGERANT DISTRIBUTORS assure uniform distribution regardless of load...number of circuits...or evaporator temperature. The interchangeable nozzles give them flexibility and a wide range of applications. The perfectly designed conical button assures even distribution to all circuits.

SPORLAN
TV

So with this combination...

the Sporlan Catch-All...Solenoid Valve...Thermostatic Expansion Valve and Refrigerant Distributor, you will get Peak Performance right down the line...

See your Sporlan Wholesaler TODAY

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VOLUME 82, No. 4, SERIAL NO. 1,487, SEPTEMBER 23, 1957

"Were it left for me to decide whether we should have a government without newspapers or newspapers without government, I should not hesitate a moment to prefer the latter."—Thomas Jefferson.

**OFF THE CHEST****OLD READER IN NEW FIELD CARRIES TORCH FOR NEWS**R. S. Noonan, Inc.
York, Pa.

Editor:

Thanks a lot for your heart-warming message. Answering your question, R. S. Noonan, Inc. is an engineering and contracting firm with extensive and proven experience in industrial plant and commercial building construction. Augmenting its general contractor organization, is a complete engineering and design staff with several registered engineers and architects who have had broad experience in the design of industrial and commercial plants and buildings.

But I have not left the refrigeration field quite as far as you may suspect from the above. R. S. Noonan, Inc. has the exclusive rights to install the "floor-warming" system which was developed and patented by

Al Ruff. We already have a number of these systems installed throughout the country and operating in a most satisfactory manner. And still again, Noonan has done and is doing work for such firms as Campbell Soup, with whose frozen food program you are undoubtedly familiar.

It is for this reason that I am converting the firm to your publication by bringing to their attention specific articles therein from time to time.

The next time you are in York and have an extra moment, drop in and see me. My office is only half a block from the Yorktowne hotel and I will greatly enjoy hearing from you all about what's going on in the industry "not fit to print."

Best regards, George, and again many thanks.

MARSHALL G. MUNCE

Handy Way to Subscribe**To See the Industry In Action EVERY WEEK**

Keep up-to-date on what's going on in your industry. You'll see action weekly in AIR CONDITIONING & REFRIGERATION NEWS. Covers latest news and gives you top how-to-do-it reports on commercial and residential air conditioning, heating, commercial and home refrigeration; manufacturing, contracting, distributing, retailing, and servicing. Read the industry's newspaper for profit every week. Only \$6.00 per year, 52 issues (U.S. and Canada). Foreign: \$10.00 per year.

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Send the NEWS every week for: ☐ One Year \$6. ☐ Three Years \$12.
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They'll
Do It
Every
Timeby
Jimmy
Hatlo**Cigarettes, Lung Cancer
And Air Conditioning**

ALTHOUGH many doctors and medical societies are warning that cigarette smoke may be a factor in lung cancer, sales of cigarettes continue to climb. Obviously people are willing to take the risk. As Dr. E. V. Northrup, author of the book, *Science Looks at Smoking*, writes:

'Life, after all, is a series of calculated risks, not the least of which is the risk of falling for medical statistics. To yield small pleasure without protest is a thoughtless waste. Life, at best, is a losing proposition. As Mark Twain put it, nobody ever came out of it alive.'

And Dr. Harry S. N. Greene, chairman of Yale university's department of pathology, adds: "I will continue to smoke, and if the tobacco companies cease manufacturing their product, I will revert to sweet fern and grape leaves."

Even though this writer is hoping his teen-age son will not take up the habit, he confesses that smoking is a great comfort to him in middle age.

There are compensations for growing old—chief of which, probably, is that you accept life, rather than fight it. And that calms the nerves.

Undeniably, though, as the years go by you give up one pleasure after another. Strenuous sports participation is first to go. You don't play baseball; you watch it. Then you discover you can't take the giggle-water any more, nor stay up so late. The pretty girls call you "sir" to your face and "Pops" behind your back. And so it goes. Smoking, however, is a solace that endures.

Actually, scientists are divided about tobacco being a contributing cause of lung cancer. Dr. Ian G. MacDonald, director of cancer research at the University of Southern California—who is not only chairman of the Committee on Cancer Research of the American Medical Association but is himself a director of the American Cancer Society—reported to a Congressional committee:

"Although there is an apparent association between cigarette smoking and lung cancer, a review of the total evidence fails to establish a cause-and-effect relationship."

Furthermore, LeRoy E. Burney, Surgeon General of the United States, declares: "At the same time, it is clear that heavy and prolonged cigarette smoking is not the only cause of lung cancer. Lung cancer occurs among non-smokers, and the incidence of lung cancer among various population

groups does not always coincide with the amount of cigarette smoking. More research is needed into the role of air pollution and other factors which may also be causes of lung cancer in man."

When he rings in *air pollution* as another—and probably more culpable—causative factor in lung cancer, he stands on firm ground. Practically every air conditioning serviceman in the country realizes that this is just common sense.

To become aware of the gravity of the air-pollution problem, one need only be around when an air conditioning unit is being serviced. Take a look at the muck and soot which has formed on the baffle plates in a few weeks' time. Baffle plates are to an air conditioner what lungs are to our bodies. There is no reason to suppose that our lungs fare better in fighting off air pollution than air conditioners.

Filters for air conditioners can be replaced. Lungs cannot.

One wonders why so much ado should be made over the hazard of tobacco smoking when—as these replaceable filters clearly show—even to breathe in a small or large city is hazardous.

The case against smoking is a "guilt by association" sort of thing. Cigarette consumption has increased; so has lung cancer. Ergo; one must be the cause of the other. Air pollution has increased even more at the same time, it should be noted. And a great many medical scientists believe that fumes from automobiles and factories comprise the *real* culprit in respiratory ailments.

Fortunately, there is something we can do about that. We can air condition our offices, plants, homes, and automobiles. Then we need not expose our lungs to fouled air more than a few minutes per day.

Great thing about air conditioning as a preventative of cancer:

You don't have to give up anything. Instead, you ADD to your pleasures and comfort!

For more than a decade AIR CONDITIONING & REFRIGERATION NEWS has editorialized on the subject of BETTER HEALTH as a tool for selling air conditioning. Now that it appears air conditioning can be a cancer preventative—fellows, we got it made!

Here's a suggested advertising slogan which should take the country by storm:

Don't give up cigarettes—buy an air conditioner!

DESICCANTS AND DRIERS**Part 1—Chemical, Physical Desiccants**

Table 1

Physical-Type Desiccants

Activated Alumina
Molecular Sieves
Silica Gel

Chemical-Type Desiccants

Calcium Oxide
Calcium Sulfate
Calcium Carbide
Calcium Chloride
Phosphorus Pentoxide

By Frank J. Versagi

Mueller Brass Co., Port Huron, Mich.

Does this story sound familiar? A system operates beautifully most of the year then, during the first really hot period, it freezes up.

Or this? A leak has caused a unit to become very wet. Drier after drier fails to completely clear up the trouble. In exasperation, the serviceman changes the brand of drier and everything is fine.

The answer to these problems has nothing at all to do with which desiccant is involved. What is happening is based on very basic physical-chemical laws which apply in general to all desiccants. An understanding of these basic laws will enable the serviceman to choose more intelligently the tools he uses for combatting moisture in a system.

First part of this series will take up desiccants alone. Later, we will study the entire drier package as it functions on an actual unit.

Desiccants, or drying agents, are used in many applications not connected in any way with refrigeration. For example, desiccants are used to dry out basements, to protect military weapons during shipment or storage, in chemical laboratories as an aid to the analytical chemist. Actually, the greatest part of the information we have about how desiccants function is based on non-refrigeration uses.

There are two basic classes of desiccants—the chemical type and the physical type. This classification means that the first type removes water by a chemical reaction—actually destroying the water's identity—and the second type removes water by a physical action which leaves the water unchanged. This latter type is often compared to a sponge in action.

Of the common desiccants, activated alumina and silica gel are physical type desiccants, calcium sulfate is a chemical type. Table I lists several old and new desiccants by type.

Driers, or rather drying agents, can differ in their total water capacity or in their effi-

ciency—how fast they can remove the water from a fluid flowing past them.

For example, air that has been passed through calcium chloride will give up water to sulfuric acid (a laboratory desiccant); air that has passed through phosphorus pentoxide will take water away from calcium chloride.

For refrigeration purposes, other things must be considered

in addition to the ability of the desiccant to adsorb water. Such requirements as non-dusting, low pressure drop, non-contamination make it impossible to use in refrigeration some of the most effective desiccants known. Phosphorus pentoxide, for example, is the best known general laboratory desiccant. It is used in the standard test specified to rate driers. But it is a dangerously corrosive chemical; it forms a lumpy mess when it picks up water and would cause a pressure drop in a unit.

Refrigeration desiccants available today are the best known which will economically accomplish all the functions necessary. In the section on driers we will discuss in more detail the practical use of desiccants. For now, let us familiarize ourselves with the principles by which they operate.

Oddly enough, the chemical type function more simply than the physical type, and we will begin our discussion with them.

Formula I

Calcium Oxide plus Water gives Calcium Hydroxide
(quicklime) + H₂O = Ca(OH)₂ (slaked lime)

Formula II

Calcium Sulfate plus Water gives Calcium Sulfate Hemihydrate
CaSO₄ + ½H₂O = CaSO₄·½H₂O

(Don't let the ½ confuse you; this is just the chemist's way of stating what happens. It doesn't mean that only half of any water present is taken up.)

In this type of desiccant, the water either completely loses its identity or is chemically tied up so that it cannot act as free water.

Although no longer common, calcium oxide is an example of a material which destroys the water's identity. What the chemical action looks like is shown in Formula I.

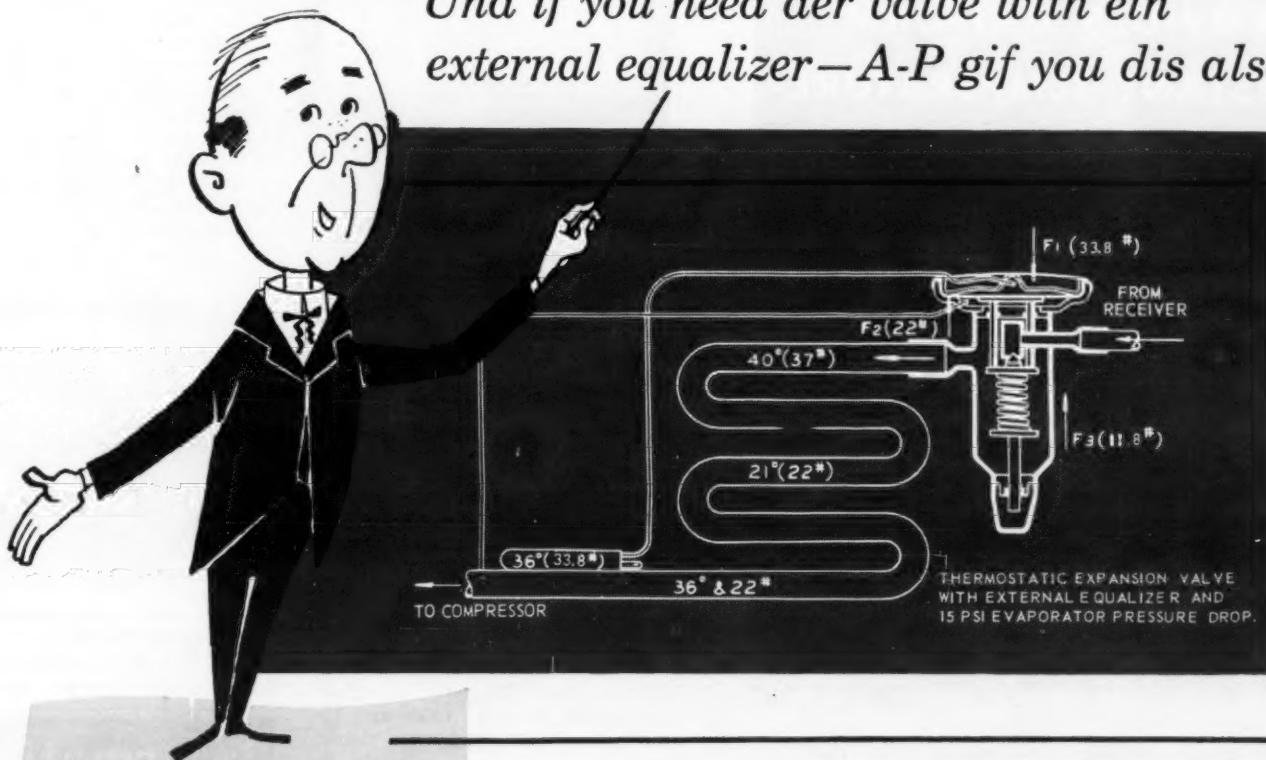
The slaked lime becomes a putty like material and this ma-

terial must be prevented from flowing into the refrigerant stream.

Calcium sulfate, commonly known as Drierite, is also a chemical-type desiccant, but it operates in a slightly different manner. Although it does not actually decompose the water, it forms a chemical compound of which the water is a part. How it works is shown in Formula II.

(To Be Continued)

"Und if you need der valve with ein external equalizer—A-P gif you dis also!"

**Two great 207's (C&D)**

now available—maintain maximum evaporator efficiency at all times

A-P thermostatic expansion valves feature either an internal or external type equalizer that provides constant low-side pressure. Long a favorite with refrigeration men, the Model 207-C (internal equalizer type, in capacities of ¼, ½, 1 and 1½ tons R12) is widely used. The latest A-P development, Model 207-D, is available in the above sizes — but designed exclusively for external equalizer applications. This model features a larger diaphragm and head plus special packing. The 207-D is also available in the new 2- and 3-ton sizes — both internally and externally equalized.

Which valve to use? You'll find complete facts in the NEW A-P Pocket Manual Series — it's the answer book on all thermostatic expansion valve applications. It's yours FREE. Write today.

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Manufacturers of A-P CONTROLS

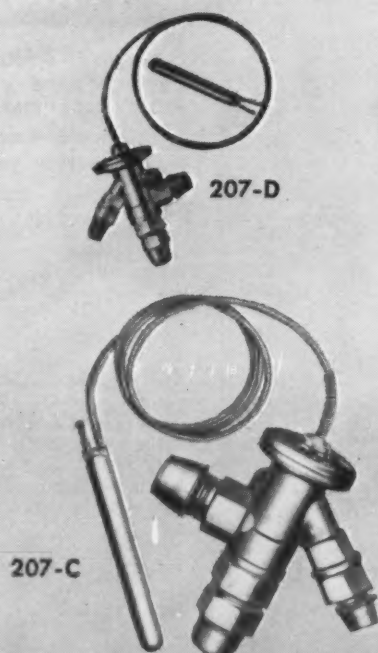
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**MECHANICAL INDUSTRIES
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Model 207 is an all-temperature, all-purpose expansion valve with the exclusive A-P liquid charge feature. Instantly adaptable to low, commercial or air conditioning temperatures (from -40° to +40°) without adjustment. Fits with ease into hard-to-reach corners. Adjustable superheat.

What's New



Adds 'Idealarc' A.C., D.C. Welders

—KEY NO. G-940—
CLEVELAND — The Lincoln Electric Co. has added two new welders to its line of "Idealarc" combination a.c. and d.c. welders. The new machines are 180 and 250 ampere capacity.

Machines are designed to operate equally well either as an a.c.

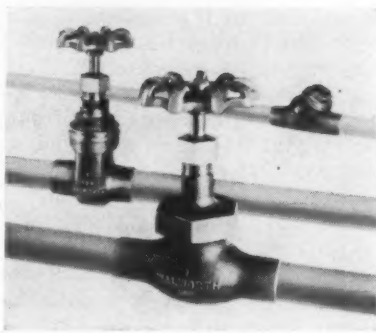
transformer type welder or a d.c. rectifier type welder. A switch on the front panel changes the welder from one operation to the other.

A "two-in-one" feature enables operation of all types of manual electrodes, including stainless and alloy rods. The units are also available as straight a.c. machines, to which the d.c. rectifier can be readily added at a later date, if desired.

Solder-Joint Socket Valves Introduced

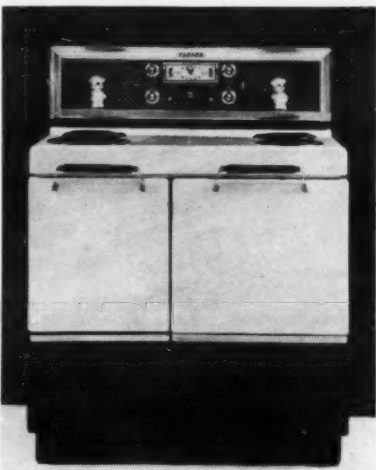
—KEY NO. G-941—
NEW YORK CITY — Extension of its bronze globe, gate, and check valves through solder-joint sockets for use on copper tubing has been announced by Walworth Co.

Walworth's valves are designed for use with K, L, and M copper tubing used in steam, water, oil, and gas service. The SJ globe valve has a service rating on steam of 150 p.s.i.; on non-shock cold water, oil, and gas the rating is 300 p.s.i. Both the SJ gate and check valves have a 125 p.s.i. rat-



ing on steam and a 200 p.s.i. rating on non-shock cold water, oil, and gas.

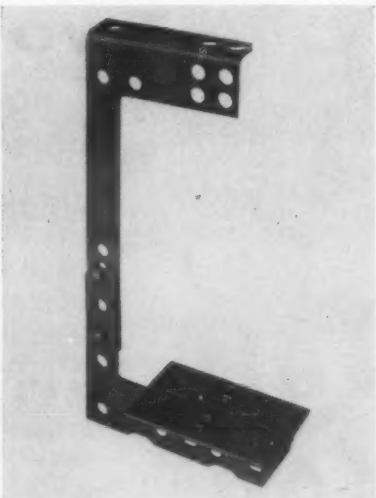
New SJ valves incorporate the design and engineering features of Walworth's regular bronze valves. The 95SJ globe valve has a rising stem and a union bonnet. Its disc holder is connected to the stem by a slip fit.



Range Offers Central Instrument Panel

—KEY NO. G-942—
MANSFIELD, Ohio — An all-new series of "Brisk, Black, and Beautiful" 36-in. electric divided top range in the popular price category was unveiled by the Tappan Stove Co.

Highlighting the deluxe model is the new "Tap-O-Matic" instrument panel centrally located away from the heat zone. Lighted with new twin-type showcase lights, the Tap-O-Matic panel houses controls for the chromalox electric elements, oven clock for completely automatic cooking, bake and broil indicator lights, and oven thermostat.



Develops 2-Piece Duct Hanger

—KEY NO. G-943—
DETROIT — A hanger which provides greater strength and easier, faster hanging of its lay-in duct has been announced by the Square D Co. In addition, new features have been incorporated into the original duct design to assure complete lay-in accessibility.

Because of the design of the two-piece hanger, there are more than 20 different ways in which this duct can now be installed. Location of duct runs is no longer a major problem, the company said.

15-Cu. Ft. Chest Freezer Holds 522 Lbs.

—KEY NO. G-944—

ST. JOSEPH, Mich. — Storage capacity for 522 lbs. of frozen food is provided in a new 15-cu. ft. "RCA Whirlpool Custom" model chest freezer introduced by Whirlpool Corp.

Seven refrigerated inside surfaces permit fast contact freezing of large quantities of food. A removable divider separates the chest into storage sections, and a lift-out basket holds 31 lbs. of food.

Automatically adjusting to conform perfectly to the cabinet, a self-aligning counterbalanced lid assures a tight seal. The lid opens and shuts easily and will not pop up or close unexpectedly. A wide rubber collar around the cabinet top forms a shelf area for use in loading or unloading the freezer.



The unit measures 37 in. high, 54 7/8 in. long, and 33 1/2 in. deep. The lid may be removed, permitting the freezer to pass through a 28-in. door opening.

'Fiberscreen' Is One-Size Filter Replacement

—KEY NO. G-945—

CHICAGO — Easy-cut "Fiberscreen," an improved one-size filter replacement material to fit all size and model window and room air conditioning units, has been introduced by Fiber Bond Corp.

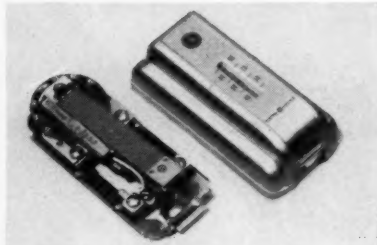
Produced of bonded "Dynel," acrylic fiber made by Union Carbide Corp., the new filter is designed for easy handling and cutting to size, and is said to last longer and filter air more efficiently than previous materials. It has a stiff cotton mesh backing, making it ready for use as is without a supporting frame.

Packaged in reusable polyethylene bags in one standard size—1/2



in. thick, 15 by 24-in. sheet—the material may be cut like cloth with ordinary scissors. The single size is designed to reduce retail inventory problems, yet can be cut to fit all sizes of room units.

Anticipator Helps Provide Even Temperature



—KEY NO. G-946—
SCHENECTADY, N. Y. — A new variable heat anticipator which helps provide even temperature

control under extreme weather conditions will be incorporated as standard equipment on all General Electric Co. room thermostats according to an announcement by the Appliance Control Dept.

Designed to operate with the thermostat, the new anticipating device helps eliminate common complaints of hot and cold temperatures experienced with some heating systems, the firm said.

The anticipator causes the thermostat to turn the heating system on or off at proper time.

**PROVIDES UNIFORM
CONSTANT TEMPERATURE
IN ANY TRUCK BODY!**

**A SURE SIGN OF
DEPENDABLE REFRIGERATION**



For All High Temperature Applications NO SPOILAGE! NO LOSS!

"Holdover for Stopovers"—available in models providing partial or complete holdover. Utilizes a minimum of floor space. Compact, light in weight, simple in operation. Easily installed within the truck body in a manner of minutes.

Let Dole engineers show you how a *Truk-Cel* Unit can fit your needs—and do a better job!

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**EUTECTIC
BLOWER
UNITS**



Write for particulars
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Information Center

For more information on What's New products, current literature and catalogs available, equipment advertised in AIR CONDITIONING & REFRIGERATION NEWS use Key Numbers where designated or specify products advertised and we'll see that you receive this information promptly.

Products Advertised
(list name, page, and issue date)

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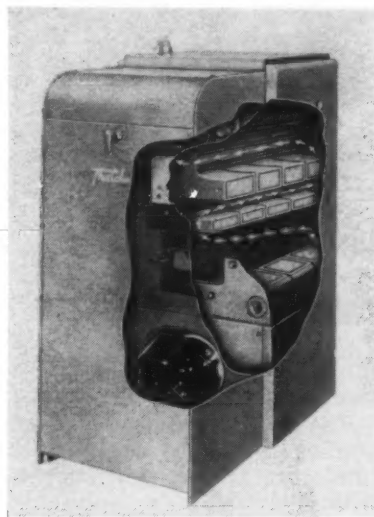
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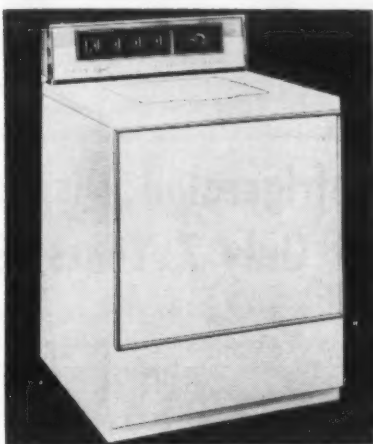
Washer Line Features 'Tip-Top' Filter

—KEY NO. G-9410—

CHICAGO—Easy Laundry Appliances, division of Murray Corp. of America, introduced its 1958 "H" line of washers, dryers, and a new combination washer-dryer.

New H line consists of four automatic washers, six automatic dryers, and the "Combomatic," Easy's new combination unit. The three electric and three gas dryers are matched in design and construction as "perfect pairs" to the three top-line washers—the "Regent," the "Riviera," and the "Cavalier," it was noted.

The 1958 Regent washer, model ADH, has as its outstanding feature a new "Tip-Top filter," engineered into the lid for full-time



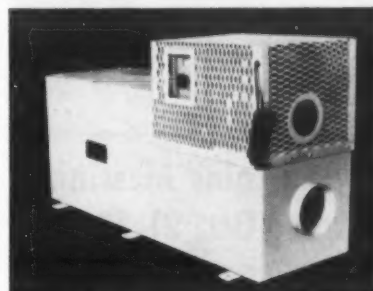
filtering of lint, grit, and sediment.

Controller Delivers Constant Humidity Air

—KEY NO. G-9412—

ARLINGTON, Va. — Development of a new controller for delivering constant humidity air has been announced here by Universal Dynamics Corp.

"Humitrol" maintains the relative humidity level within plus or minus ¼% r.h., or better, in an air or gas stream. The unit is composed of a sensing element, control system, and modulating device, all integrally mounted, and is for use in conjunction with dehumidifiers, humidifiers, and air conditioning equipment. It is available in sizes ranging from 20 c.f.m. up, the manufacturer pointed out.

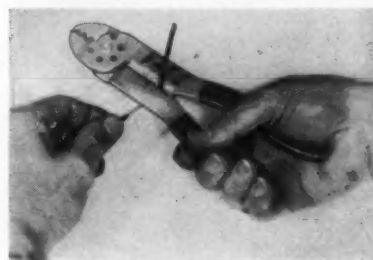


Makes Combination Crimping, Cutting Tool

—KEY NO. G-9413—

CHICAGO—Latest to come from the designing department of Vaco Products Co. is a precision-made, combination crimping tool, bolt cutter, wire cutter, and insulation stripper.

Called "Vaco Crimcut Tool," this implement is 8 in. long and heavily chrome plated for added durability and rust protection.



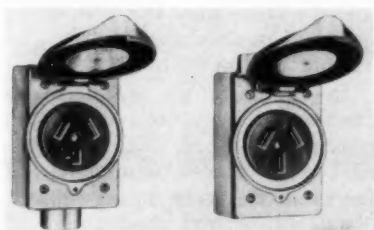
Installation Ease Is Boiler Feature

—KEY NO. G-947—

GARWOOD, N. J.—High heating efficiency and ease of installation are two of the important features of the "Oilmaster 56," a fully automatic oil-fired cast-iron boiler announced recently by the Thatcher Furnace Co.

Unit has staggered, horizontal flue travel and extended fins along all flue passages. The fins, it was explained, increase the effective heating surface of the boiler. The horizontal flue design gives ample time for heat transfer to take place.

The Oilmaster 56 is available in three models. Capacities range from 97,000 to 168,000 B.t.u. Firing rates range from .95 g.p.h. to 1.60.



3-Wire Lift-Lid Receptacles Added

—KEY NO. G-948—

HARTFORD, Conn. — Availability of three-wire weatherproof receptacles with lift lid—30 and 50 amperes, 250 v.—has been announced by Arrow-Hart & Hege-man Electric Co.

This new line of weatherproof outlets is designed for use with F. D. fittings which are not supplied by the manufacturer. Included among the advantages claimed for these new devices is ease and speed of installation, made possible by straight-through wiring and pressure-type terminals. These terminals, which accommodate Nos. 6, 8, and 10 wire and are recessed for safety, eliminate the need for tilting or for looping and bending heavy wire.

Automatic Condenser Purger Announced

—KEY NO. G-949—

MAYWOOD, Ill. — Purge drum with internal water coil, differential thermostat, solenoid vent valve (with indicator light), metering valve, and fittings are the components offered in the purger announced by J. E. Watkins Co.

An automatic, condenser type, the purger is electrically and thermostatically controlled. At present two models are offered for ammonia systems, one for up to 300 tons of refrigeration and the other for plants over 300-ton capacity.

The Watkins purger operates on the principle that air and most non-condensable gases are lighter than ammonia refrigerant gas in normal operating mixtures. Therefore, if the mixture is not agitated, the air will rise to a point where it can easily be vented.

Protective Coating Used as Insulation

—KEY NO. G-9411—

PHILADELPHIA — Selby, Battersby & Co. recently announced development of a new protective coating for low temperature insulating materials used in refrigerated and cold storage rooms.

Known as "Koldrok," this new formulation has wide application in meat packing plants, dairies, breweries, cold storage plants, restaurants, food processing plants, and refrigerated warehouses, the company said.

More POWER with Less Amps!



Performance-Rated FAN MOTORS

HELP SOLVE YOUR LOAD AND POWER FACTOR PROBLEMS

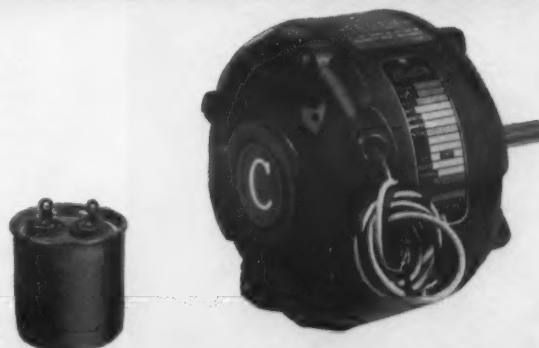
In air conditioning or ventilating equipment, you can reduce starting current, reduce running current and increase power factor with these new Century Fan Motors. They are Performance-Rated for air conditioning manufacturers who are faced with new load and power factor problems. Fan manufacturers find advantages in their short length, light weight, multi-speeds and easy reversibility.

In your product and in your plant, Century Motors are Performance-Rated to fit your needs. For information, call your nearby Century Sales Office, or write us direct.



Type C, Permanent Split Capacitor... round frame, single speed, reversible—also available with cushion mounting.

Type CM, Permanent Split Capacitor... round frame, 2 or 3 speeds, all reversible—also available with cushion mounting.



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For more information about products advertised on this page use Information Center, page 18.

What's Going On in Commercial Refrigeration

News of Markets, Products, Methods

Food Chains Meeting Set for Oct. 21-23

WASHINGTON, D. C.—Exhibits of equipment, fixtures, and supplies will be a feature of the 24th annual meeting of the National Association of Food Chains, scheduled for Oct. 21-23 at the Sheraton Park and Shoreham hotels here.

"Putting the Power in the Penny Through People," is the theme of the Monday, Oct. 21 session of the meeting. Tuesday's theme will be "Operating for Improved Efficiency," and the theme, "Sales, Efficiency and Profit," will keynote the Wednesday session.

SMI Conference to Be In Miami Beach

CHICAGO—Irving W. Rabb, vice president, retail division, Stop & Shop, Inc., Boston, has been named chairman of the program committee for the mid-year conference of the Super Market Institute at the Americana hotel in Miami Beach, Fla., Dec. 7-11, Don Parsons, SMI executive director, has announced.

SMI's mid-year conference attracts top management of the nation's supermarket industry, and is devoted to discussions of current problems, it was pointed out.

Refrigerated Display Fixtures Have Average Useful Life Of Only 7 Years, Supermarket Operators Report

CHICAGO—The average useful life of refrigerated display fixtures in supermarkets is seven years.

That is what a representative group of supermarket operators said in reply to a survey by the Super Market Institute. SMI was seeking data on depreciation rates as compared with actual useful life of major supermarket equipment.

The data was presented Sept. 10 by three representatives of SMI to an advisory group on Bulletin F (depreciation allowances) issued by the Bureau of Internal Revenue. It was intended to convince the group that supermarket operators should be permitted to depreciate their equipment at a much faster rate than currently allowed.

From 39 to 42% of the operators replying, said their refrigerated display cases and compressors had outlived their usefulness in five years or less. Only 1 to 3% reported an actual useful

life for their refrigeration equipment of more than 10 years.

The survey covers 90 supermarket companies operating a total of 1,572 retail outlets with a combined sales volume of about \$2.2 billion in 1956.

These companies range in size from one store to about 200 stores. They are headquartered in 32 states and territories of the United States.

A comparison of what each operator considered the actual useful life of the equipment with what period he used to depreciate it is found in Table I.

The percentage of companies who depreciate their equipment in five years or less, six to 10 years, or over 10 years appears in Table II. This table also shows in the same manner the actual useful life of the equipment.

The survey found that approximately 43% use the straight line method of depreciating their refrigeration equipment, 32% use the declining balance method, and 25% the sum of the digits method.

In summing up the opinions expressed by those members participating in the survey, SMI told the Commission of Internal Revenue that "today, obsolescence and inadequacy of equipment are the major factors in determining the useful life of supermarket equipment."

"In fact," it added, "super-

(Concluded on next page)

*** HIGH LEVEL REFRIGERATION * AUTOMATIC DEFROST * EXTRA-HEAVY-DUTY COILING**

a few of the TYLER ADVANCED DESIGN achievements that make possible this

SEE-MORE EASIER-REACH DISPLAY



Shopper buys more faster!



Impulse sales shoot up! with appealing display—quick product identification—easy reach to every part of display. Customer sees more, sooner—and better, with Tyler 33" no-glass, open-front Sales-Cases. They provide full, direct, uninterrupted view of merchandise—make packages easier to see, easier to read!

Visit the Tyler exhibit at the NAFC SHOW—Booths 29-34

(Above). New Tyler Sell More Super Deluxe Shopping Cart (patents pending). Exclusive lower tray slides out for fast, easy, rear unloading at checkout. Extra-large capacity for oversize bulk items.

Better, lower-cost refrigeration! Faster turnover, greater impulse purchases, bigger profits! No wonder more and more leading food merchandisers are making the big, store-wide switch to Tyler 33" no-glass, open-front Sales-Cases. Ask about the many Tyler-pioneered innovations that help food store operators SELL MORE and SAVE MORE!

30th YEAR
TYLER

PIONEER of important improvements

TYLER REFRIGERATION CORPORATION, Niles, Mich.
Canada: Tyler Refrigerators, 732 Spadina Avenue, Toronto, Ontario. (Export Tyler Refrigeration International, C.A., Apartado Postal 9262, Caracas, Venezuela, S.Amer.)



Tyler Refrigeration Corporation, Dept. AII-9, Niles, Michigan
Rush latest data on new Tyler Sales-Cases Rolling-Cold Packaging Conveyors Walk-In Coolers Storage Freezers Reaching In Refrigerators Service Cases Condensing Unit Assemblies Shelving Color Compatibility System Store Planning.

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WILL SHELVING HELP YOUR SALES?

"Get the E-Z Story"



"E-Z" SHELVING
GIVES PIN-POINT ADJUSTABILITY

"E-Z" BRACKETS & STANDARDS
Provides These Advantages:

- (1) Helps solve Uneven Floor Problem. Upper Shelves Adjust Level without shimming.
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- (3) Provides rugged "back-bone" for many shelving requirements.
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NO KEYHOLES OR SLOTS
Brackets slide up and down in Standard groove and lock at any point on Standard.

HANDLES ALL NORMAL DISPLAY LOADS

Write For Free Folder

Standard Steel Works, Inc.
DEPT. AC-11, NORTH KANSAS CITY, MO.

Table I—Period of Depreciation (Number of Years)

	CURRENTLY USED			ACTUAL USEFUL LIFE		
	Average	Median*	Middle Half*	Average	Median*	Middle Half*
Building	34	33½	30-40	29	30	25-33
Parking lot surfacing	11	10	5-10	8	8	5-10
Checkout counters	9	10	8-10	7	7	5-10
Cash registers	9	10	8-10	8	8	5-10
Grocery shelving	9	10	8-10	8	10	5-10
Refrigerated display cases						
Meat	9	10	8-10	7	7	5-10
Produce	9	10	8-10	7	7	5-10
Dairy	9	10	8-10	7	7	5-10
Frozen food	9	10	8-10	7	7	5-9
Meat wrapping machines	9	10	8-10	7	8	5-10
Power meat saws	9	10	8-10	8	8	5-10
Power meat grinders	9	10	8-10	8	8	5-10
Automatic computing scales	9	10	8-10	8	8	5-10
Shopping carts**	7	5	5-10	5	5	3-5
Walk-in coolers	11	10	10-10	10	10	8-10
Compressors	9	10	8-10	7	8	5-10
Lighting fixtures	11	10	10-10	9	10	7-10
Motor vehicles						
Trucks	4	4	4-5	4	4	4-4
Tractors	5	4	4-5	4	4	4-5
Trailers	6	5	4-6	6	5	4-6

*The Median is the halfway or middle figure when all figures in the group are listed in order of size from the smallest to the largest. Middle Half includes the companies between the one-quarter and three-quarters points, thus omitting the extremes.

**Several supermarket operators treat shopping carts as an expense item rather than a fixed asset, because of their short life.

Table II—Period of Depreciation (Number of Years)

	Currently Used				Actual Useful Life			
	Average (yrs.)	5 Yrs. or Less	6-10 Yrs.	Over 10 Yrs.	Average (yrs.)	5 Yrs. or Less	6-10 Yrs.	Over 10 Yrs.
Building	34	...	...	100%	29	...	2%	98%
Parking lot surfacing	11	27%	56%	17	8	44%	47	9
Checkout counters	9	14	84	2	7	34	65	1
Cash registers	9	12	87	1	8	36	61	1
Grocery shelving	9	15	76	9	8	27	68	5
Refrigerated display cases								
Meat	9	14	83	3	7	42	57	1
Produce	9	13	84	3	7	40	57	3
Dairy	9	13	84	3	7	39	58	3
Frozen food	9	13	85	2	7	41	58	1
Meat wrapping machines	9	18	81	1	7	41	59	...
Power meat saws	9	16	81	3	8	31	66	3
Power meat grinders	9	18	80	2	8	30	67	3
Automatic computing scales	9	16	79	5	8	33	64	3
Shopping carts*	7	54	49	...	5	78	22	...
Walk-in coolers	11	4	77	19	10	9	78	13
Compressors	9	20	73	7	7	40	59	1
Lighting fixtures	11	9	77	14	9	21	70	9
Motor vehicles								
Trucks	4	96	4	...	4	98	2	...
Tractors	5	84	16	...	4	86	14	...
Trailers	6	64	36	...	6	55	45	...

*Several supermarket operators treat shopping carts as an expense item because of their short life.

Supermarket Equipment Depreciation --

(Concluded from preceding page) The following are typical, market fixtures and equipment SMI said. "During the period from 1949 to 1956 inclusive, we disposed of 165 refrigeration items and in all cases sustained substantial losses. The composite life of all of these items was five years and three months."

"Improvements such as a self-defrosting frozen foods case quickly depreciate earlier models."

Members cited a number of specific examples of rapid obsolescence of refrigerated fixtures. The following are typical, SMI said.

There is mounting evidence that we will be changing this equipment again in six to eight years."

"Our stores have been remodeled, on the average, after 10 years. On that basis, we were able to establish a 10-year composite life. In some cases, however, we have completely replaced equipment in approximately five years. Meat cases and island display units were made obsolete by technological advances when they were only 50% depreciated."

SMI Says There Is No Market for Used Refrigeration Units

SMI pointed out that there just isn't any market for used refrigeration equipment any more. It explained:

"If a supermarket operator finds it necessary to dispose of a piece of equipment, other supermarkets are not interested in that equipment either."

"The small store which in years past might have bought that equipment is becoming increasingly scarce."

"Furthermore, the costs of removal, cartage, and installation are higher for used equipment than comparable costs for new equipment."

"Therefore," the SMI argued, "supermarket operators should be permitted to depreciate the cost of their equipment over the actual economic useful life."

"They should not be required to use a longer estimated useful life and have a sizeable undepreciated balance to be charged off when fixtures and equipment are replaced and junked."

SMI noted that in 1955, depreciation amounted to 1.36% of sales of food chains and this exceeded the average net operating profit after taxes of 1.21%.

Dairy Groups To Gather Oct. 20-26 In San Francisco

SAN FRANCISCO — During the week of Oct. 20-26, following the 11th annual meeting of Dairy Society International, will be sessions of the Milk Industry Foundation, International Association of Ice Cream Manufacturers, and Dairy Industries Supply Association. Sessions will be held in San Francisco.

At Cold Canadian Base

Frozen Milk Quarts Melted at Room Temperature Eases Delivery Problem

WINNIPEG, Man., Can.—Delivery of fresh milk in frozen quart-size blocks, to be melted at room temperature for use, is believed to have solved the problem of milk delivery at a northern Canadian military base, an Army spokesman said here.

An experimental delivery in this form, believed to be the first in Canada, was successful.

The spokesman said 10,000 qts. of milk, frozen in waxpaper quart containers, were shipped 1,000 miles by railway refrigerator car from Winnipeg to Fort Churchill, Man.

He said medical authorities found the milk's quality was not altered by freezing and melting and it remained good for from seven to 10 days. They said it

might even be superior in quality to fluid milk delivered nearer the source.

A second shipment of 10,000 qts. was scheduled. It is enough to supply the base for two weeks.

Previously, the base had no fresh milk. Cows can not be pastured on the barren lands around the base.

Army authorities asked a Winnipeg creamery to experiment with freezing. The creamery reduces the milk's temperature to -45° F. as soon as it is pasteurized. Then it is placed in refrigerator cars for shipment.

The cars move to Churchill on the thrice-weekly service of Canadian National Railways.

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Offers 5 Points for Proper Drain Pipe Installation

Expert Decries Improper Refrigerator Case Drainage Inadequate Planning In Supermarket Layout as Serviceman's Chief Headaches

By Robert L. Marker

DETROIT—Improper installation of refrigerator case drains and inadequate planning in supermarket layout were cited as major contributions to servicemen's headaches, in a talk given by C. A. "Al" Hinkley, director of educational services and application engineer for the Tyler Refrigeration Corp., at a recent service conference here.

'Owner Doesn't Want Puddles on Floor'

"The owner of a refrigerator case doesn't know or care where the water is coming from that makes a puddle in front of a refrigerated case. He just knows it shouldn't be there and wants it stopped," Hinkley said.

Fifty out of 53 calls over a five-week period on complaints of high temperature in cases were traced to improper drain treatment, Hinkley asserted. He gave several points of importance in drain pipe installation:

Important Points

- (1) Drain pipe should not be reduced in size. Small lines, using bushings, trap solids in condensate water, causing depositing of these solids and eventually plugging the drain pipes.
- (2) Drains should never be run uphill. A 1/4-in.-per-ft. fall is the recommended minimum.
- (3) If water won't drain uphill, it won't drain on the level, since there is no pressure behind it. Only gravity induces flow.
- (4) Do not "tee" several cases solidly into one drain line. Each case should have its individual line. But several drains can be dumped into open tees in a common header. Even so, each individual case drain must be of sufficient size, must be trapped, and must have adequate fall.
- (5) Drains should not be

solidly connected into floor drains. Water should be dumped into open floor sumps, with each sump located to serve no more than two cases.

Hinkley explained that external trapping is suggested on all cases. There is an open bowl type of drain in most cases. The circulating fans in certain models are positioned so that cold air would be blown out the drain pipe. In other models, the fans would draw warm air into the case through the open drain fitting.

An external trap then is necessary on both models. Traps should be located at least 12 in. from the case exit on low temperature models, he said, to prevent freezing from conductive cold in the line.

It is desirable that all cases drain quickly and efficiently. Where water cannot drain quickly, an ice accumulation in the drain pan usually results.

When case insulation becomes saturated, the most logical assumption of the serviceman is that either the drain pan or drain fitting leaks.

Seam Is Slip Joint

Hinkley pointed out that the seam between the bottom pan and the side panels is a slip joint. This is true of all makes of cases, he noted.

If the coil ices and is defrosted, water can infiltrate the seam and run into the insulation cavity. More often it happens when a water hose is used indiscriminately for defrosting.

If a water hose is run into a case with a clogged drain, water can overflow the pan and completely saturate the insulation in the bottom.

When a loose drain pan fitting is suspected, tighten the flange with a T wrench instead of soldering around the flange. A

neoprene rubber seal is used on the bottom flange. Tightening the top flange will seal any leaks.

If insulation does become saturated it contributes to condensation on the outside of the case, which eventually finds its way to the floor.

Explains Condensation Corrective Measures

Condensation and other causes of water on the floor along with corrective measures were explained with the assistance of color slides taken on the actual scene of such complaints.

Refrigerated cases installed within a few inches of an outside wall will often cause complaints of water "leaking," Hinkley said. He explained it thus:

With heat leakage through the case wall, the air temperature in the area between the case and the outside wall is eventually reduced to its dewpoint. Moisture condenses on the case and runs down to the floor. Since no floor is perfectly flat, the water will follow irregularities in the floor finish and accumulate in front of the case.

In winter the same action takes place as room air condenses on both the wall and the case. Ice might form at the floor level during winter, providing a constant trickle as it melts.

Cases installed back-to-back give the same effect, aggravated by a shelf along the top, enclosing the dead air space between the cases.

Among other remedies, Hinkley mentioned using a string of low wattage light bulbs or a strip heater between or behind the cases. But better and more economical, he said, is a small circulating fan directed into the area affected. The object is to keep the air temperature in the area above dewpoint.

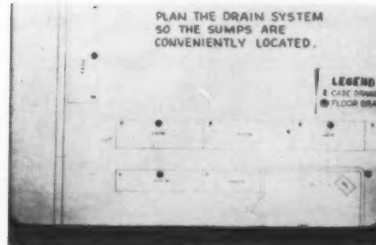
"These complaints are not the responsibility of the servicemen, but the planners," Hinkley charged. "People doing the planning are not always familiar with operating characteristics of equipment or with manufacturers' specifications for its installation," he said. "They may not even be aware of neglecting these details."

'Education, Planning'

The two top factors that will help reduce these complaints and give owners more satisfactory results are: (1) Education and (2) Proper Planning.

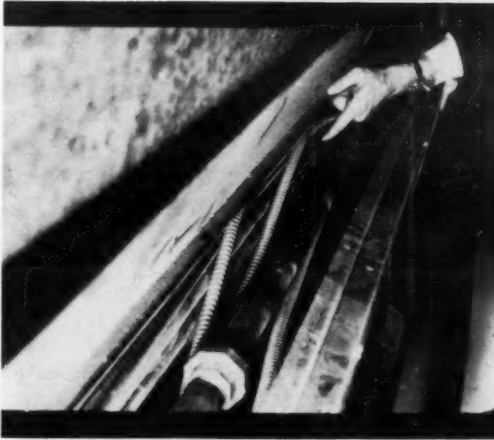
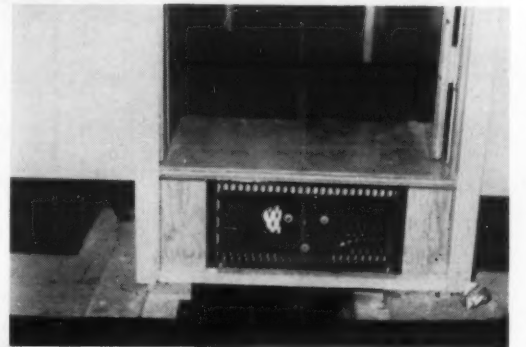
Most troubles can be prevented in the planning stage, he asserted.

Hinkley said that practically all refrigeration equipment is designed with provisions for



REFRIGERATED CASE drains should not be solidly connected into floor drains. Water should be dumped into open floor sumps, with each sump located to serve no more than two cases, as shown in this typical layout.

A SMALL CIRCULATING FAN directed into the dead air space between cases set back to back will prevent dripping by keeping the air temperature above dew-point.



CONGESTING toe recess areas with refrigerant lines, electrical cables, and drain lines can create problems. Keep drain and refrigerant lines separated, Hinkley advises.

running lines through front, rear, or end openings.

When toe recess areas are congested with refrigerant lines, electrical cables, and drain lines, problems can result, especially where the drain is in direct contact with a suction line.

Wherever possible, the area through which refrigerant lines are run should be separated from the drain line area, he advised.

He suggested that if the front toe recess is used for refrigerant lines, then drain provisions can be planned in the rear and vice versa, eliminating the possibility of drain lines freezing.

Many servicemen attribute recurrent icing of the drain pan to an inoperative defrost heater, before even checking the heater,

he said. Before changing a heater unit there are some simple checks that should be made.

If the limit thermostat in the heater circuit is inoperative or cycles prematurely, obviously the heater cannot function properly and an iced coil results.

Simply by-passing or wiring around the thermostat and re-checking the heater will reveal the true source of difficulty. And, Hinkley cautioned, the coil must be completely cleared of ice before the case is put back in operation. This is of utmost importance.

If the heater and limit thermostat operate but the coil and drain pan are iced, an improper drain installation is indicated.

(Concluded on next page)

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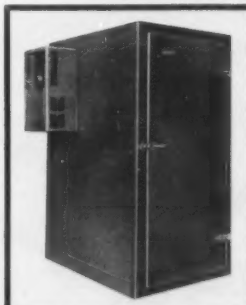
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Proper Drain Installation --

(Concluded from preceding page)

A moisture ground in the heater was discounted as highly improbable since it is hermetically sealed. Hinkley told of a supermarket that was flooded and the defrost heater was actually under water for an extended period. It was still in good operating condition.

He gave an example of a three-case line-up, the center case of which was showing high temperature. The serviceman found that there was no air circulation in the case. He concluded that either the fans were not operating or the coil was iced up.

An amperage reading on the defrost circuit of 14.6 amps indicated that only two defrost heaters were functioning, since the total reading should have been 21.9 amps, had all three heaters been operating. Each one draws 7.3 amps.

After jumping the limit thermostat in the center case, and rechecking, he found amperage to be correct, which indicated that only the thermostat required replacement.

Cleaning Condensers

Hinkley touched on cleaning condensers, emphasizing that both end plates must be removed before running the cleaning tool through the tubes. Cleaning from one end only, deposits the residue in the return bends at the other end, forming a complete restriction.

He said the rear plates can be removed from the front side of the unit, but serviceability is improved when working area at the rear is provided in the machine room planning.

Condensers, presently used by Tyler, contain no tubes in the lower portion, which reduces sensitivity to high liquid levels encountered where systems are slightly overcharged with refrigerant. A proper charge need occupy only 15% to 20% of the height of the condenser, Hinkley stated.

He said that the practice of trying to evacuate a system with the compressor is very bad. Moisture and other contaminants can be drawn into the motor windings of hermetics and into the compressor housing.

That's why a vacuum pump capable of delivering a 29-in. vacuum should be used. A vacuum should be maintained for several hours to effect thorough evacuation and to dry the system out.

'Good Planning Can Avoid Problems'

He cited other problems that can be avoided by good planning. Condensing water needs treatment to counteract the effects of salts and chemicals present in water.

Chemical Accumulation

Chemical	Tap Water	In Tower Water No Treatment
Hardness (grains/gal.)	4.5	234.0
Carbonates	0.6	3.7
Bicarbonates (very harmful)	1.9	26.6
Chlorides (salts)	1.74	260.6

He showed results of a test on an actual installation illustrating rapid accumulation of certain chemicals in untreated towers. Condensers were fouled within three days, in this system, with resultant high head pressures. (See table above.)

Most waters can be treated chemically, he noted, but all cooling tower systems need a "blow-down" or "bleed-off" system that bleeds off water from the pressure side of the pump.

While the rate of bleed-off can be calculated for each individual installation, a satisfactory rule of thumb approach involves a bleed-off equal to the evapora-

tion rate, or approximately two to three g.p.h. per ton of refrigeration.

Another rule of thumb commonly used is that 2% of total circulated water volume must be bled off.

The object of bleed-off is to control the build up of harmful non-evaporative salts and solids which cause scale and corrosion, rendering chemical treatment ineffective, and failure a certainty.

Hinkley lamented the fact that few store planners give thought to cooling tower water treatment. To be effective, treatment should begin with the initial start-up of the tower, and analysis of supply water made before start-up, so that proper treatment can be obtained.

Good Market Layout

Emphasizing the need for education, Hinkley stated that the refrigeration industry needs to

work with architects and planners in laying out supermarkets. Together they can work out the details of equipment location, drain location, refrigerant line installation, electrical facilities, condenser installation, and cooling tower installation according to the specifications and recommendations of the manufacturer. Best results from equipment will then be assured.

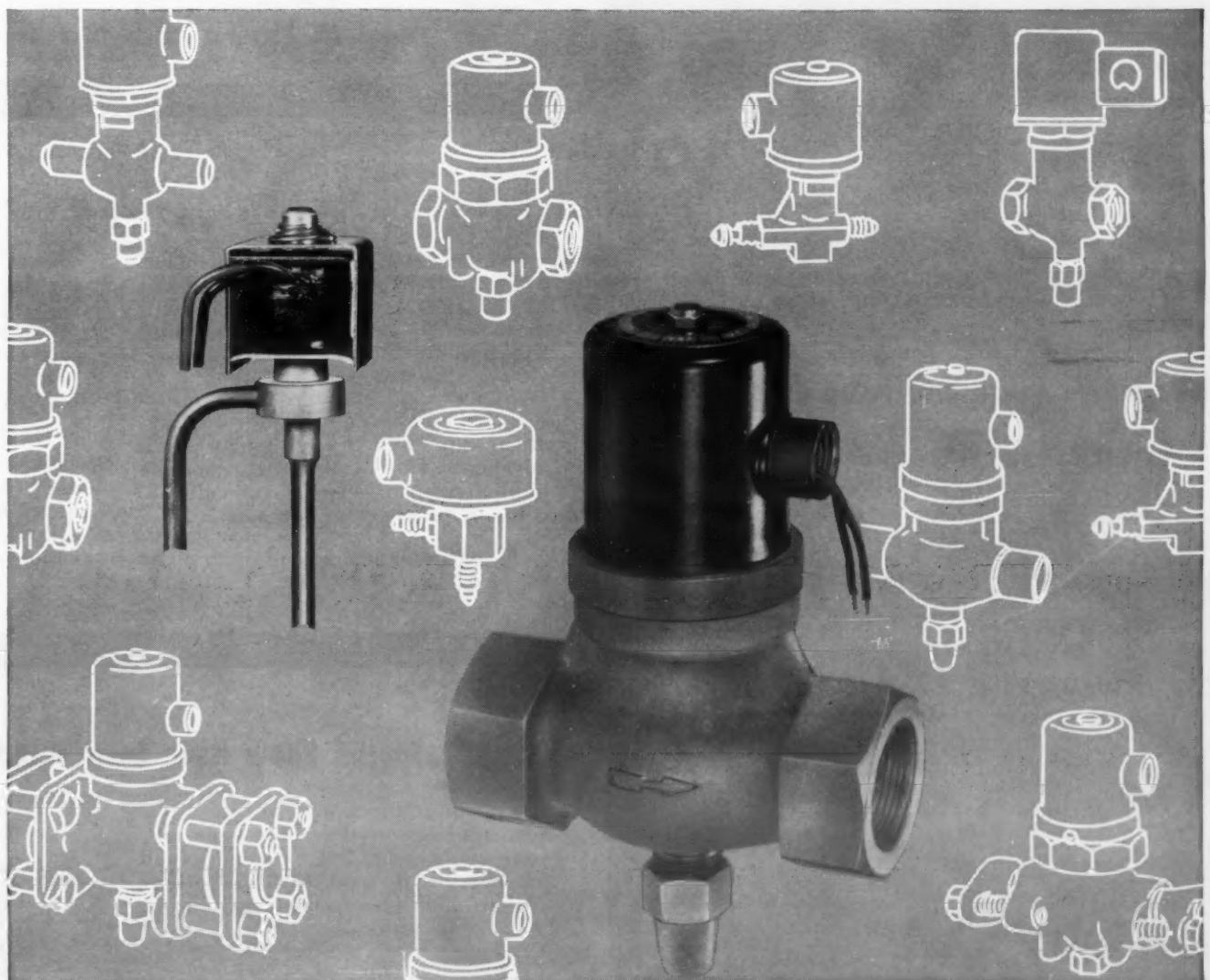
Flames Destroy Locker Plant

WILLARD, Ohio—A \$100,000 fire destroyed the Willard Locker plant at 840 Dale Ave., but most of the frozen meat and food was saved from the 300 lockers in the building.

C. C. Thompson, Sr. Dies

COLUMBIA, S. C.—Clyde C. Thompson, Sr., 63, formerly co-owner of Vise-Thompson Refrigeration Co. here, died recently at his home here.

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October 28 is "First-of-Four" Show Promotion Issues.

This year, the NEWS has geared to help you get the best possible results from the 10th Industry Exposition. Again this year, not one but *three* pre-show issues will help promote interest and attendance at the show; three issues will be available to help you pre-sell your prospects, remind them of your booth number, invite them to visit. And—the traditional show issue will remind them of your exhibit and act as a handy reference guide on where to go, what to see. Be sure to reserve enough space to tell your whole story in at least one of the show promotion issues.

The NEWS four-point issue dates:

- 1 **OCTOBER 28** Pre-Show Issue . . . special emphasis on Commercial Refrigeration
- 2 **NOVEMBER 4** Pre-Show Issue . . . will feature Air Conditioning
- 3 **NOVEMBER 11** Pre-Show Issue . . . all about Parts and Supplies and the OEM market
- 4 **NOVEMBER 18** Show Issue . . . big, fact-packed Show Issue

Last forms close 12 days preceding date of issue.

Take Advantage of these Special NEWS Merchandising Services.

1. Extra copies of the NEWS issue in which your advertisement appears can be sent to your select customers and prospects. A special bargain price is available for any of the four promotion issues—only twenty cents per copy.
2. Reprints of your advertisement are available at cost. Simply ask your NEWS representative or write to the NEWS Merchandising Department for a quotation.
3. Additional merchandising services are available upon request. Your local representative has complete details. But to be sure that you have your complete program in time for the show, please contact him well in advance.

Join with the NEWS to Help Break Attendance Records.

Your success at the show depends upon the attendance from November 18 through 21. The NEWS four-point promotion plan is helping to build this into the biggest exposition ever.

With three big pre-show issues, everyone in the industry will know the news about the 10th Exposition well in advance. The NEWS will combine publicity, advertisements, and editorial columns to encourage attendance.

Your participation in one or more of

these pre-show issues—and of course the big Show Issue—will make your customers and prospects aware of the products you intend to exhibit. You can help encourage attendance and help yourself to more results by making sure that you get the maximum activity.

The pre-show issues are timed to hit your market at the high point of buyer interest: October 28, November 4, November 11. So make your reservations now to be in one or all.

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Most important of all—be sure your advertisement in the Show Issue tells your whole story. Your customers and prospects will want to know where you are and what you are exhibiting.

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JOE SULLIVAN.

How One Firm Develops Air Conditioning Sales In Area 'Well Worked Over'

COLUMBIA, Mo.—A striking example of the truth of the axiom that "the gold is there if you'll find a way to mine it," can be found in the progress in sales of air conditioning products achieved by the Air Conditioning Equipment Co., Wholesale Div. of the Baker-McClintic Co. here.

Columbia is located fairly near to the center of Missouri, and is the educational center of the state, being the location of the University of Missouri, Stephens college, and Christian College for Women. However, it is not a large city, nor is it located near any metropolitan areas, but there are a number of fair-sized cities close by, including Jefferson City, the state capital.

Area Has Been Pretty Well Worked

Off-hand it wouldn't appear to hold any sensational possibilities as a market for air conditioning sales, particularly in view of the fact that much of the area has been pretty well worked in the period since the end of World War II.

Yet in just a couple of years Allen Baker and Maurice McClintic, principals of the Baker-McClintic Co., have developed a distributorship operation for Chrysler Airtemp products through their wholesale division that has resulted in an ever-increasing volume of sales in room units, residential systems, and commercial package units.

Treat Dealer As You Would Want To Be Treated

Baker and McClintic were not "beginners" in the air conditioning business—both had experience in merchandising comfort cooling equipment. But it was the first venture in operating a distributorship, and the success they have achieved thus far, says Allen Baker, is through "ways and means that fit our dealers' own particular situations. You must treat them as you would want to be treated if you were the dealer," Baker says. "We consult them on various policies that affect them."

This relates to several different matters. Take the sale of various types of air conditioning equipment at retail in the immediate Columbia area. Baker-McClintic has appointed dealers to handle the sale of residential and commercial units, but sell room air conditioners through

their own retail outlet, a home improvement company specializing in aluminum storm windows, insulation, and garage doors.

Incidentally, 22% of the firm's wholesale sales represented miscellaneous items such as cooling towers, pumps, duct insulation, prefabricated duct, grilles, and registers.

Home Improvement Firm Markets Room Units

"We just couldn't find the kind of dealer in Columbia who would push room air conditioners," Baker says. "We knew we had a pretty good market, and we didn't want to see it drift away because of the indifferent handling by dealers. We went to our commercial dealer and our residential heating and air conditioning dealer, both in Columbia. They both felt our mutual interests would best be served by our retail home improvement company. We decided to handle the sales in the Columbia area ourselves and have managed to do a pretty good volume."

"In the commercial packaged end of the business we didn't want to become involved in the actual sales and installation work, mainly because we didn't want to have to find or train installation mechanics."

"We found a firm—the A. C. Bishop Co.—which had the necessary facilities and labor force to handle all the installation work, but the principals of the company didn't want to get involved in selling air conditioning, and they weren't particularly interested in going out and trying to find someone to do the sales job for them. But it was indicated that if we found the sales manpower for them they would handle the commercial packaged equipment."

"We did some looking around and finally found our man in Charlie Reid. He was a life-long resident and well-known in the community, and had at one time operated a tile flooring business, so that he understood some of the problems involved in construction and building modernization work, and knew how to talk to businessmen on these problems."

"To make a long story short, Charlie joined forces with the A. C. Bishop Co., and has proved 'natural' at selling air conditioning. He seems to have ways of finding out just what businesses, government agencies, or churches are considering air

conditioning, and he has been able to present a convincing story, and the dealer has backed him up with good installations."

List of Installations Shows Possibilities

Proof of the job that has been done can be seen in the following list of the installations representing the sales made by Charlie Reid during the ten months of 1956, having started March 1, 1956 with NO previous air conditioning experience.

Ben Franklin variety store, Centralia—two 5-hp. air-cooled units.

Y & S Food Store, Columbia—3-hp. air-cooled unit.

Hunts Drug Store, Columbia—7½-hp. air-cooled unit.

Whiteman Air Force Base, Knob Noster—2-hp. water-

cooled unit, with cooling tower.

Puckett's men clothing store, Columbia—7½-hp. unit, with cooling tower.

Cronans Market, Columbia—3-hp. air-cooled unit.

Waller Clothing Store, Centralia—3-hp. air-cooled unit.

Assembly of God church, Columbia—two 5-hp. water-cooled units, with cooling tower.

M.F.A. Insurance Co., Columbia—two 7½-hp. air-cooled units.

Long Theatre Co., Bowling Green—7½-hp. air-cooled unit.

Wilson's Drug, Centralia—3-hp. air-cooled unit.

Jefferson City School Board, Jefferson City—three 5-hp. units with cooling tower.

Daniel Boone Barber Shop, Columbia—2-hp. air-cooled unit.

Beber Drive In, Centralia—5-hp. air-cooled unit.

City of Columbia Library, Columbia—3-hp. and 10-hp. water-cooled units with tower.

Wyatts Grocery, Columbia—

10-hp. water-cooled unit.

James Reid, Centralia—2-hp. air-cooled unit.

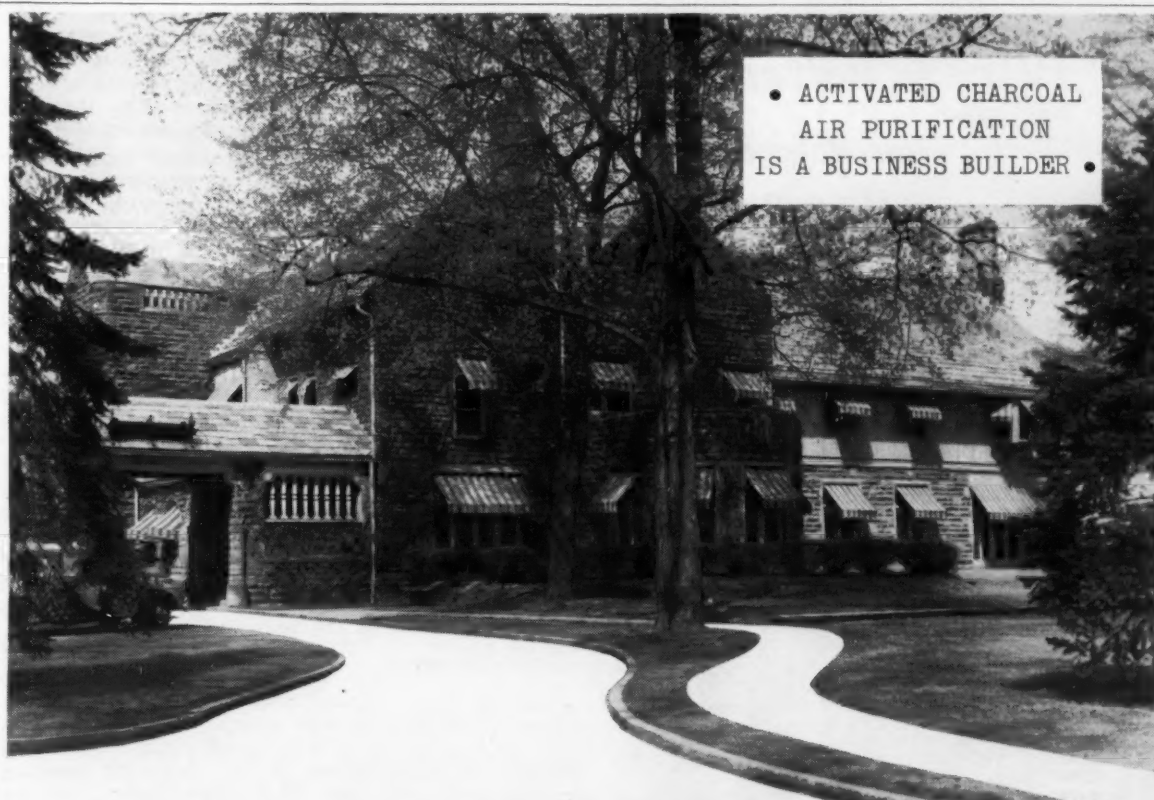
Tiger hotel, Columbia—two 7½-hp. air-cooled units.

First Baptist church, Centralia—two 15-hp. water-cooled units with cooling tower, and a 2-hp. air-cooled unit.

This list of installations is a guide to the kind of prospects that can be sold air conditioning in communities of the size and type of Columbia. One of the ways in which the Baker-McClintic Co. has helped its dealers is through the development of a modest advertising program that has a "local touch," so to speak.

The advertisements used last year told about some of the installations in the community.

"People are always interested in what their business competitors or neighbors are doing," Baker points out, "and it paves the way for salesmen to talk air conditioning to them."

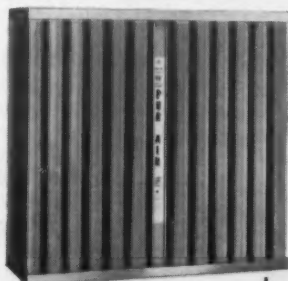


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Include activated charcoal air purification in your next job—cooling or heating. Barnebey-Cheney has a complete line of activated charcoal air purifiers for any size or type installation, from smallest window unit to largest central system. Forced air heating needs activated charcoal air purification too. Odor control is a year-around necessity. With activated charcoal purifiers performing the function of outside air for ventilating, 30% savings in cost can be realized.



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Refrigeration Problems And Their Solution

(As Written by Paul Reed)

The late Paul Reed, one of the refrigeration industry's most respected writers and teachers, wrote a column on "Refrigeration Problems and Their Solution" which was published regularly in AIR CONDITIONING & REFRIGERATION NEWS for more than 15 years.

Readers throughout the years have hailed this written material as some of the most practical and helpful that has ever been published. Fortunately, the author had an opportunity to revise some of this material and the NEWS is currently re-publishing it.

One Cause of Burned Out Compressor Bearings

A reader in Amsterdam, Holland, asked for an opinion on what was causing excessive bearing wear of two 5 hp. and two 3-hp. Refrigerant-12 condensing units on a fish freezing installation. Suction pressure at cut-out was 2 in. of vacuum and at cut-in, 10

p.s.i.g., which probably resulted in an average evaporator temperature of about -18° F. Cooling water temperature was about 54° F. and a rise of approximately 10° F. was permitted. The head pressure at these in-and-out temperatures would depend somewhat on con-

denser design, but the average head pressure was probably about 70 p.s.i.g. At any rate, it must have been quite low.

The reader mentioned that a heat exchanger was used and that the suction line from the heat exchanger to the compressor was dry, so it was above the dewpoint temperature of the room, and it is likely that the suction gas was superheated to nearly room temperature by the time it entered the compressor. It would be reasonable to assume that the temperature of the Refrigerant-12 entering the compressor was about 65° F.

COMPRESSOR BEARINGS 'SHOT' AFTER TWO MONTHS

After only two months of use, the main and connecting rod bearings were completely ruined, or as the reader described them, "melted away." The compressor oil level had been up to normal at all times and no peculiarities of operation were observed.

A compatriot had suggested that during the off-cycle the oil in the compressor absorbed so much refrigerant that its viscosity and lubricating ability were impaired and the bearings wore excessively. He suggested a suction line solenoid valve, to be closed during the off-cycle, so as to prevent absorption of Refrigerant-12 by the compressor oil during the off-cycle.

Our correspondent doubted this explanation and properly observed that since the suction line was dry during the running cycle, the suction gas entering the compressor must have been warm, thus reducing the likelihood of wet refrigerant entering the compressor and thus thinning the oil.

We wrote him and offered an explanation along the following lines and suggested some corrective procedures.

This is not an uncommon condition on low temperature installations, but frequently its cause is not recognized. We felt that perhaps other readers might be interested in our diagnosis of what may have caused the too-rapid wearing of the bearings.

A more detailed description of the installation and its operating characteristics, including temperatures at several other locations on the equipment, might indicate causes of the too-rapid bearing wear other than those that we suggested, but there are two clues that inclined us to suspect that the compressor crankcase ran too hot, thus resulting in reduced oil vis-

cosity and lubricating value, and consequently in excessive bearing wear.

TWO CLUES

One clue was the low evaporator temperature and the other was the warm suction line. If the suction gas is allowed to warm up to about room temperature, then its superheat or temperature rise is going to be very much greater than if the evaporator temperature is high, say up at about 25° F. or 50° F.

That is, at the same compressor inlet temperature, the superheating of the suction gas is much greater on low temperature jobs such as this one, than on high temperature jobs in, for example, an air conditioning installation.

To illustrate, let us compare this job to an air conditioning installation having a 40° F. evaporator, and assume that the compressor inlet temperature is the same, say 65° F.

Also, we will assume that the same compressor is used but that it operates at a higher revolutions per minute on the low temperature installation than on the air conditioning in order that the motor load is about the same in both cases.

The reader referred to a 5-hp. unit, so we will assume a displacement of 35 c.f.m. on the -18° F. evaporator and 17½ c.f.m. on the 40° F. evaporator.

SUCTION GAS CONDITIONS FROM A -18° F. EVAPORATOR

If we refer to the Refrigerant-12 tables, we will find that at saturation at -18° F. and a suction pressure of 1.3 p.s.i.g., Refrigerant-12 has a volume of 2.37 cu. ft. per lb. and a total heat of 76.11 B.t.u. per lb. At 65° F. (superheated 83° F.) its volume is 2.856 cu. ft. per lb. and its heat content 87.72 B.t.u. per lb. Its suction pressure is still 1.3 p.s.i.g.

So in warming up 83° to 65° F., it has increased about one fifth in volume and picked up 11.61 B.t.u. in heat.

Since its displacement on the low temperature job is 35 c.f.m., this compressor will be pumping (35 ÷ 2.856) or 12¼ lbs. of Refrigerant-12 per minute. This much Refrigerant-12 will bring (12¼ x 87.72) or 1,074.57 B.t.u. of heat to the compressor, of which (12¼ x 11.61) or 142.22 B.t.u. is superheat and (12¼ x 76.11) or 932.35 B.t.u. is latent heat.

SUCTION PRESSURE CONDITIONS FROM 40° EVAPORATOR

Now, to this let us compare what this same compressor at one half the revolutions per minute, so as to still give approximately the same load to a 5-hp. motor, will show on a 40° F. evaporator, again assuming that the gas gets to the compressor at 65° F. So in this case, it is superheated only (65° - 40°) or 25° instead of the 83° as before.

At 40° F. saturation the volume of Refrigerant-12 is .792 cu. ft. per lb.; or roughly one third what it was at -18° F. By the time it warms up the 25° to 65° F., its volume has risen to .841 cu. ft./lb. This is roughly 30% of the volume of the gas entering the compressor at 65° F. but coming from the -18° F. evaporator. Putting it another way, the gas from the 40° F. evaporator is over three times as dense, so if the compressor displacement were the same, it would pump over three times as much Refrigerant-12 as if it came from the -18° F. evaporator.

This would require about a 10-hp. motor, so the compressor revolutions per minute is cut to about one half, which cuts the displacement to 17½ c.f.m. in order that a 5-hp. motor can handle it.

At 17½ c.f.m. the compressor would pump (17.5 ÷ .841) or 20.8 lbs. of refrigerant per minute instead of the 12¼ lbs. from the -18° F. evaporator. Now, how about the amount of heat in this 20.8 lbs. as compared to the heat that was in the 12¼ lbs.?

At 40° F. saturation, the total heat content of Refrigerant-12 is 82.7 B.t.u./lb. Superheated to 65°, the heat content rises to 86.4 B.t.u./lb., a rise (superheat) of 3.7 B.t.u./lb. The compressor is pumping 20.8 lbs. of Refrigerant-12 per minute from the 40° F. evaporator (instead of 12¼ lbs. from the -18° F. evaporator), so it is pumping (20.8 x 86.4) or 1,797 B.t.u.—almost twice as much as from the -18° F. evaporator.

LITTLE SUPERHEAT FROM THE 40° EVAPORATOR

But (and here is the point of the whole thing) only 20.7 x 3.7 (or 78 B.t.u.) of this is superheat, as compared with the 142 B.t.u. of superheat from the -18° F. evaporator. That is, there is almost twice as much sensible heat in the 65° F. gas from the -18° F. evaporator as from the 65° F. gas from the 40° F. evaporator, although there is only about one half as much latent heat.

HOT OIL DOES NOT COOL HOT BEARINGS

So if the compressor is getting all of this sensible heat, it is bound to be affected by it. The body, the crankcase, and the oil will be heated far more by the large amount of sensible heat in the suction gas from the -18° F. evaporator than one half that much sensible heat from the 40° F. evaporator.

As a consequence, the oil was overheated, it became thinner, and lost a great deal of its lubricating value, so the bearings wore far more rapidly.

One of the prime functions of oil is to carry away heat. If the oil itself is very hot, it will not be able to carry away much heat from the bearings; that is, hot oil cannot cool hot bearings very much.

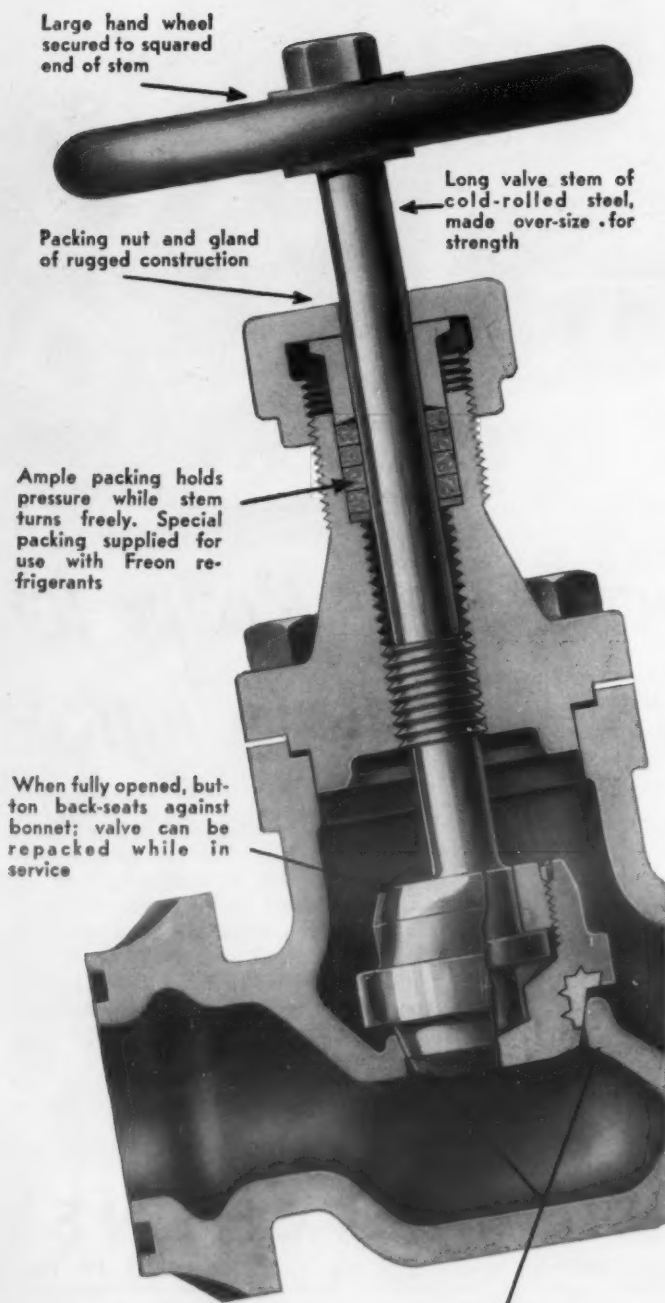
As a result, the bearings wore out in a fraction of their normal life. The reader did not mention it, but it is probable that the seal gave trouble too, due to excessive wear of the seal faces.

How hot can the oil get and still do a good lubricating job? That depends somewhat on the oil itself. A low viscosity oil—say 150 seconds Saybolt—thins out more with heat than does a 300 viscosity oil,

(Continued on next page)



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Burned Out Compressor Bearings--

(Continued from preceding page) so it would be better to use it in a hot compressor.

It is generally considered good practice to keep crankcase temperatures 120° F. or under. Crankcase temperatures above that are apt to result in excessive bearing and seal wear. Crankcase temperature can be determined by putting a thermometer to the crankcase, preferably near one of the main bearings or the seal.

HIGH DISCHARGE TEMPERATURE, TOO

Moreover, if we assume the same head pressure (and this is probably true, for this is a water-cooled machine and the condensing water is cool, so the water valve can be, and was set for a low head pressure, probably about 70 p.s.i.g.). Then the ratio of compression in the case of the -18° F. evaporator is $85 \div 16$ (or 5.3), and $85 \div 52$ (or 1.6) in the case of the 40° F. evaporator.

So with the gas compressed over three times as much ($5.3 \div 1.6 = 3.3$), the discharge gas is much hotter from the -18° F. evaporator, than from the 40° F. evaporator even though the head pressure is the same.

If we refer to a Mollier chart for Refrigerant-12, we find that at a 65° F. inlet temperature and a 70 p.s.i.g. head pressure, the discharge gas from the -18° F. evaporator will be at about 180° F., while from the 40° F. evaporator, it will only be about 100° F. So the hot gas discharge will even further aggravate the tendency of the crankcase to overheat on the low suction pressure.

REMEDY—REDUCE SUCTION SUPERHEAT

Yes, but what can the reader do about it? He can't do much about the condensing temperature and pressure; he is already running about as low a head as is practical; and indeed it is an unusually low head pressure. If the compressor is not already so supplied it can be equipped with a water-cooled head.

The most important thing to do is to reduce the superheating in the suction line. Feed the expansion valve more heavily (lower superheat adjustment) so that the suction gas entering the compressor is about 0° F. instead of 65° F. This will still allow about 18° F. superheat, which is enough to prevent oil slugging if the expansion valve works smoothly and shuts off tightly during the off-cycle.

This cold a suction line will "sweat" and drip water, for it is far below the dewpoint temperature of the room air, so it may be necessary to insulate the suction line to prevent dripping from the suction line.

With the suction gas temperature entering the compressor, lowered to 0° F. (18° F. superheat) the total heat of the gas is 78.56 B.t.u./lb. instead of the 87.72 B.t.u./lb. at a 65° F. inlet temperature. This reduces the superheat from 11.61 B.t.u./lb. to 2.45 B.t.u./lb., or less than one fourth as much. This will allow the crankcase to run cool enough that the bearings will stand up for a normal length of time, instead of lasting only a couple of months.

ANOTHER REMEDY—COOL THE OIL

On installations on which it is necessary to run high suction line superheat, and high compression ratios—that is, low temperature installations using single stage compression, oil coolers have been used.

The crankcase oil can be cooled either by air or water. In the air-cooled method, an external oil line is run from the compressor oil pump to a small finned coil, preferably placed where there is some air movement. From this coil the oil is carried back to the crankcase. If the size of the oil-cooled coil is generous, the oil can be cooled to within 20° F. above room temperature.

Perhaps a simpler and more effective way is to submerge a few inches of copper tubing in the oil in the crankcase so that it is not in the way of the rods and crankshaft, and pass cool water through this coil. On some makes of compressors this is furnished as standard equipment.

If the compressor oil is held to 100° F. or less, there should be no trouble from excessive bearing wear due to too much superheat of the suction gas on low temperature installations.

The sequel to this is a letter from our friend in Holland saying that he had followed our suggestion of bringing the suction gas back to the compressor at a little above 0° instead of highly superheated, and he has no further bearing trouble.

Men on the Move . . .

Wolverine Tube, Div. of Calumet & Hecla—JACK H. SMITH has been promoted to the new administrative post of manager of districts. Formerly manager of Wolverine's east central sales district, Smith will coordinate the activities of all the firm's sales districts responsible for marketing copper, copper base alloy, and aluminum tubular products. Headquarters will be in the Detroit general sales office.

RICHARD B. FLYNN succeeds Smith in the east central sales district as manager. Flynn, who has been with Wolverine since 1939, will coordinate the sales activities of the district from offices in Detroit.

Tranter Mfg., Inc.—Newly-formed Product Research & Development Dept. is headed by C. P. (BILL) YODER, formerly assistant general sales manager of the firm. Function of the new department will be to locate and analyze new products and their market potential for possible production by Tranter.

BOB SAXTON replaces Yoder as assistant general sales manager. He has been with Tranter since 1951.

Detroit Controls Div., American Standard—RALPH W. MOORE will represent the full line of the company's products in North Carolina and parts of Virginia and South Carolina, in its east central sales region. Active in the heating and refrigeration industry for over ten years, he will headquarter in Charlotte, N. C.

Long Mfg. Div., Borg-Warner Corp.—A. H. SCHMAL, formerly sales manager of special products, has been appointed general sales manager. Appointment of ROY NORTON as director of engineering was also announced. Norton previously served as assistant director of engineering and as transmission engineer.

Henry Valve Co.—ROBERT W. CARVELL has been added to the sales staff as sales supervisor of the new "Industrial Div." Carvell will head Henry's newly-expanded program on high-pressure forged steel fittings and valves for industrial application. Carvell has been sales manager of Betz Div., Bohn Aluminum & Brass Corp., concentrating on wholesaler activities.

Dunham-Bush, Inc.—RAY FER- RON has been appointed to the

company's staff of sales engineers. Ferron, formerly associated with Hill-York-Broward Co., Ft. Lauderdale, Fla., will cover the area of southern Florida and Caribbean Islands.

Janitrol Heating & Air Conditioning Div., Surface Combustion Corp.—R. F. HORAN's appointment as manager of the Janitrol Institute of Dealer Management was announced recently. Horan will conduct schools throughout the country for Janitrol heating and cooling dealers on the various facets of salesmanship, business management, and sales promotion. He was one of the founders of the National Society of Sales Training Executives, an organization of 100 outstanding specialists in the U. S.

Air Impeller Div., Torrington Mfg. Co.—WILLIAM E. CASHEN has been appointed sales representative in the Midwest. Headquartered in Dayton, he will direct the company's sales and engineering services in Dayton, Columbus, Cincinnati, and the rest of southern Ohio. Cashen joined Torrington in 1942.

Westinghouse Appliance Sales—JOHN W. VOGT was named manager, sales administration. Vogt will administer factory divisions' sales functions and programs through district offices. He was formerly assistant to the general manager.

RAY E. NOWELS was appointed operating and accounting administrator at the headquarters office in Pittsburgh. He will assist in organizing and administering operating and accounting functions in the firm's district offices. He was formerly regional operation manager for Westinghouse Electric Supply Co., Pacific Coast region.

American Air Filter Co., Inc.—Appointment of C. J. GASPAR as eastern regional sales manager for all AAF products was announced. His new duties will be in addition to his role as manager of the New York branch office.

Two of AAF's supervisory sales engineers for Herman Nelson unit ventilator products have been reassigned. FRANK A. STANTON has been appointed to the middle Atlantic states area, and will headquarter in New York City. He was formerly sales supervisor for the midwestern states. DALE D. BRIGGS has been assigned to the central states area and will be transferred to Louisville from San Francisco, where he was west coast supervisor.

W. N. MURRAY has been named branch manager of the Boston branch office of AAF. He succeeds ROBERT E. REID, who was named special sales engineer, working out of the Boston office. In addition to his new duties, Murray will continue as supervisory sales engineer for the Herman Nelson unit ventilator products in the New England states.

Stoddard Industries, Inc. (Chicago)—GEORGE H. CANTRELL has been named sales manager. For the past several years Cantrell has been the president and operating executive of two different companies. One is an importing and mail order operation; the other, a jobber of sales stimulants.

Whirlpool Corp.—JOHN SEIPPEL was promoted from Chicago regional air conditioning specialist to sales and product training manager for "RCA Whirlpool" air conditioners. Seippel will make his headquarters in St. Joseph, Mich.

VIRGINIA VAN NORSTRAND was promoted to assistant home service director. She will assist national home service director MARCIA MEAD in the company's appliance center at St. Joseph.

The Trane Co.—ROBERT H.

OWENS has been named manager of the firm's sales office in St. Paul. He was formerly with the Cleveland office.

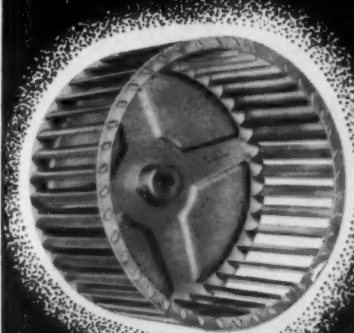
Fedders-Quigan Corp.—JERRY LANSKY was appointed director of public relations, a new post at Fedders. He will direct the publicity and public relations programs for the Fedders line. Lansky was previously on the editorial staff of "Home Furnishings Daily."

Wall Tube & Metal Products Co. (Newport, Tenn.)—JOHN W. KIDD, JR. has been appointed sales engineer, responsible for sale of all company products throughout the southeast. He was formerly sales engineer with United States Gypsum.

Cronstoms Heating & Sheet Metal, Inc. (Minneapolis)—LOWELL E. ANDERSON has been appointed manager, replacing R. E. PETERSON, who resigned. Anderson has been with the firm for 12 years. He was formerly assistant to the manager in charge of fabrication, installation, and complete engineering of all heating and air conditioning.

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Servicing Automobile Air Conditioners

(Vol. 2)

BY C. DALE MERICLE

The Airtemp unit is the seventh make to be discussed in the current series on automobile air conditioners. Makes previously described in this series were A.R.A., Artic-Kar, Frigette, Frigikar, Kauffman, and Mark IV. Several more makes by "independent" manufacturers will be reviewed in future instalments, following which units of most automobile manufacturers themselves will be described.

Models discussed in the current series are 1956 and/or 1957. For data on earlier models readers are referred to the original series of articles, which is available now in the handy manual, *Servicing Automobile Air Conditioners*.



FIG. 1—Evaporator case of Airtemp conditioner introduced in 1957 installs beneath the car instrument panel.

Airtemp (1)

Airtemp Div.
Chrysler Corp.
Dayton 1, Ohio

Airtemp entered the automotive air conditioning field as an "independent" in 1957 with an under-dash type of unit designed for various makes and models of cars. The Airtemp unit is not to be confused with the system offered by the automotive divisions of Chrysler Corp. as an optional accessory.

Compressor of the 1957 Airtemp system is mounted on the car engine. Condenser is located in front of the radiator. Evaporator assembly is attached beneath the instrument panel of the car (Fig. 1). A two-speed blower is part of the evaporator assembly.

Early 1957 units (Fig. 2) employed a hot gas by-pass valve and offered a magnetic clutch controlled by an on-off switch as an accessory. Later models (Fig. 3) employ a thermostatically controlled magnetic clutch as standard equipment and omit the by-pass valve.

Refrigerant-12 is used in the Airtemp 1957 system. Full charge is 2½ lbs.

Compressor

The compressor employed on the Airtemp conditioner is the Airtemp two-cylinder V-type unit. It is usually mounted on the right cylinder bank or right side of the car engine.

As stated above, a magnetic clutch may be found on some early 1957 models, and is standard on later 1957 units.

Suction service valve is on the rear of the compressor, and the discharge service valve is on top between the compressor cylinder heads.

Oil capacity of the Airtemp compressor is 12 oz. Recommended and approved refrigeration oils are Texaco's Capella "D" and Sun's Suniso 4G.

Condenser

Condenser is located in front of the car radiator. Inlet and outlet connections of the con-

denser are on the right (curb) side.

A combination receiver and drier is used on the Airtemp system. This is usually located on the inside right fender side shield of the car. The receiver is fitted with a fusible plug at the inlet side that is designed to melt and blow at approximately 212° F.

A sight glass is located in the liquid line at the receiver outlet.

By-pass valve employed on early 1957 Airtemp systems is usually located directly above the receiver.

Evaporator

Evaporator assembly, which attaches beneath the car instrument panel, includes the cooling coil, thermostatic expansion valve, propeller-type fan, and the controls.

Face of the evaporator case has three adjustable grilles to direct air flow.

Two-speed blower is mounted on the back of the case.

Superheat setting of the thermostatic expansion valve on the Airtemp system cannot be adjusted in the field.

(To Be Continued)

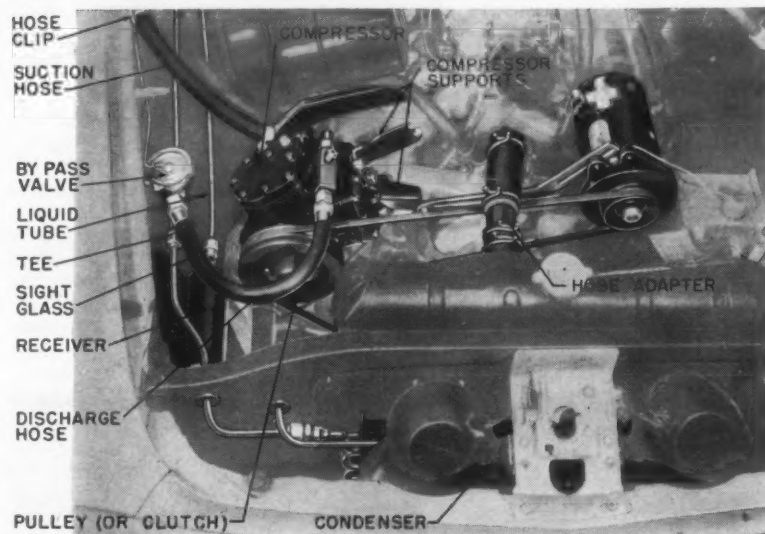


FIG. 2—Early 1957 Airtemp conditioner employs a by-pass valve as shown. Magnetic clutch is an optional accessory.

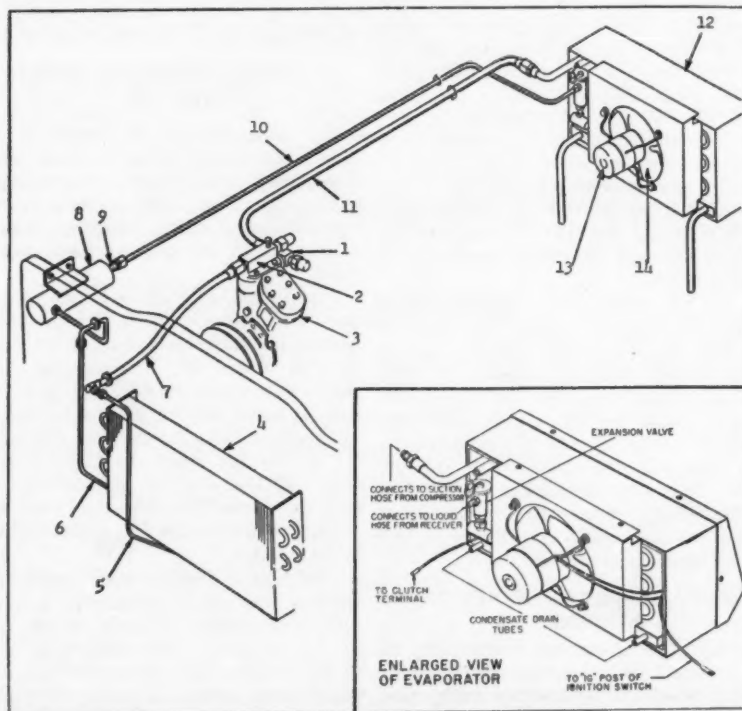


FIG. 3—Schematic of later 1957 Airtemp system with enlarged view of evaporator case from rear. Thermostatically controlled magnetic clutch is standard, and by-pass valve is omitted. (1) suction service valve; (2) discharge service valve; (3) compressor; (4) condenser; (5) condenser inlet; (6) condenser outlet; (7) discharge hose; (8) receiver; (9) sight glass; (10) liquid line; (11) suction line; (12) evaporator case; (13) fan motor; (14) fan.

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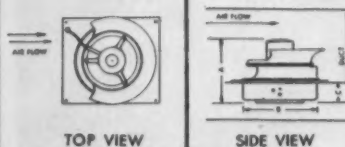
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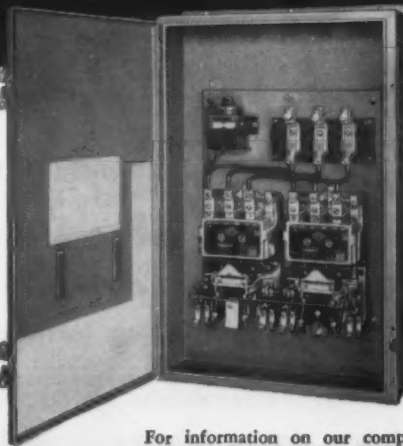
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A21



FURNAS ELECTRIC COMPANY
 BATAVIA, ILLINOIS

SALES REPRESENTATIVES IN ALL PRINCIPAL CITIES

Sees Effect of Thermal Conditions--

(Concluded from Page 1, Col. 3) profound effect on human well being and efficiency.

Comfort factors other than average temperatures must be considered by the designer and the builder. Among them are satisfactory methods of heating and cooling for special populations and work activities, it was pointed out.

Those with concern for the outdoor atmosphere (smog) were featured the first day of the conference, along with a panel of 11 home economics editors of leading southern California daily newspapers.

Ladies Like Conditioning

The ladies spoke out to good effect. They like air conditioning, they want more of it, and they want it improved.

Also they want the manufacturers of air conditioning equipment to send more publicity on air conditioning to city editors, and also to editors of national magazines who they say are neglecting this important home comfort field.

The second day dealt with progressive developments in air conditioning, and ended with a panel of five experts who made skillful presentations followed by audience participation in informative questions and answers.

Engineers, a meteorologist, a health authority, a noted physiologist, and an architect with a modern viewpoint on air conditioning, were on the program.

Contractors and engineers attending the institute considered such aspects of air conditioning as the philosophical approach, and contemplated the interest of psychologists, chemists, and the air conditioning and heating industries in comfort control, and the whole problem of environment.

Man's comfort goes far beyond our present concept of air conditioning, Dr. L. M. K. Boelter said in the opening keynote address on "Man's Effort To Control His Environment."

Dr. Boelter is dean of the UCLA college of engineering which sponsored the institute with UCLA engineering extension and in cooperation with the Institute of Heating & Air Conditioning Industries of Southern California.

Other Effects on Comfort Climate

Boelter said clothing, physical shelter, climatology, and the lack of contamination, or the presence of contamination, of the air outside man's building environment affect comfort.

He called for what he considers integrated engineering whereby the consulting engineer would come into more influence in the over-all concept of environmental control or air conditioning.

The consulting engineer would have the interests of all the special fields, the professions and the sciences, and the air-conditioning-heating people, in mind in treating the whole problem of environment.

Boelter urged conservatism in the use of energy in the rapidly-growing air conditioning field.

Dr. Vern O. Knudsen, vice chancellor of UCLA, gave the address of welcome and said UCLA has long been in the fore-

front of research into physical environment.

Knudsen said UCLA Chancellor Dr. Raymond Allen has served in the forefront of the Los Angeles fight against air pollution and recently warned that "man is creating a gigantic sewage system out of the earth's atmosphere."

James G. Edinger, speaking on the "Characteristics and Meteorological Influences on the Climate of the Southwest Region," said location of buildings in the southern California area had a very definite effect on the type of architecture, insulation, and air conditioning integration that should be used.

Edinger is assistant professor of meteorology at UCLA. He showed charts of average temperatures for the four seasons of the year, progressing from the coast to inland areas on the other side of the mountains.

'20% Thermodynamic Efficiency In Man'

Man is a heat machine with only 20% thermodynamic efficiency, Frank M. Stead said in his detailed discussion of "Man's Influence On Air Composition."

Stead is a California public health official, chief of the division of environmental sanitation. He said effects of human occupants on indoor air includes body odor and bacteria as chief problems.

Certain occupations are associated with massive pollution of air breathed by workmen. Studies of the tolerance of the human body to atmospheric contaminants have resulted in what are called "maximum allowable concentrations," and represent the amount of a substance in air to which workers can be exposed eight hours per day, six days per week, for a working lifetime without damage or undue discomfort.

Outdoor air contamination must also be considered as the raw material for indoor air, Stead said. First stage contamination comes from individual sources of smoke, gas, or dust. As an area develops the second stage is pollution of the entire air mass in a metropolitan area such as that which plagued Pittsburgh and Detroit for many years and has been

successfully controlled.

Third stage is only now beginning to be understood and involves smog in Los Angeles, in other parts of California, and other parts of the United States, Stead stated.

Rural air pollution is a problem which comes from dust storms due to certain types of farming, smoke and charred sawdust from sawdust burners, turkey ranch dust clouds, peat dust clouds, dust from cement plants, fallout, odor from faulty disposal, toxic insecticides, orchard heating smoke.

'Absolute Method'

An absolute method of figuring inter-relationships of thermal conductivity and radiation of heat within a building structure was disclosed by Harry Buchberg in his discussion of the "Application of Climatic and Atmospheric Data To Design."

His chart is a thermo network based upon the well-known resistance capacitance network used in electrical engineering.

Buchberg used resistance symbols in representing the resistance of a wall to thermal conductivity and capacitances. The symbols for capacitance represent the inter-relationship between a wall and other surfaces in the building.

His method also shows the relationship of reflective surfaces outside the building structure, both reflecting heat away from the building and reflecting it toward the building.

The Buchberg thermo network is presented as an accurate method of figuring all relationships of heat gains and losses, and thus determining the kind of installation required, and what can be done with the air. It is intended to be used before installation to determine installation characteristics.

Buchberg had graphs of actual test results after installation which showed how close the correlation was with the before installation thermo network computation.

Buchberg put emphasis on the use of various building materials, insulation, window shades, roofing, and wall reflectors, in making computation for an installation.

The major problem for air conditioning engineers is air pollution whether indoors or outdoors, Professor of Medicine

Fred A. Bryan observed in his talk on "Medical Significance of Air Contamination."

Bryan is on the school of medicine faculty at UCLA. He stated that a "standard man" weighing 154 lbs. would take in 350 cu. ft. of air during eight hours of work, and another 350 cu. ft. during 15 hours of sleep and leisure.

These 700 cu. ft. are absorbed by about 750 sq. ft. of human tissue exposed to breathing.

By contrast, Dr. Bryan pointed out, a man drinks only 5¼ pints of liquid. Therefore, air contaminants are at least as important to him as liquid contaminants.

A philosophical and enlightened attitude toward the development of improved environment was presented by a leading Los Angeles architect, John Rex, AIA, who is also a lecturer in the college of engineering at UCLA.

He gave credit to the engineer for nudging the architect into a more realistic appraisal of his position.

Credits Engineers for Controlled Environment

He credited the mechanical engineer with ever increasing building requirements on the architect to provide controlled environment.

Los Angeles has about reached that 20% point of air conditioning in its office buildings, Rex said. Since 1942, 78 million square feet of floor space have been air conditioned.

The role of building design in building environment has brought forth an entirely new series of architectural forms and shapes.

Rex called the attention of his listeners to the new Tishman building at 3540 Wilshire Blvd., Los Angeles.

This Tishman building has louvers on both the east side and the west side of the building. These louvers are 11 stories high. They are controlled electrically to present the correct angle to the sun as it moves on its orbit, so the sunlight does not strike the large amount of glass window surfaces on the east and west sides of the building.

While Rex pointed out these louvers are expensive, they are paying for themselves 10 times over in the reduction of horse-

power needed to air condition the new Tishman building.

Penthouses are now a major consideration in new building construction.

Mechanical developments have helped increase the cost of building to a back-breaking load, and "we love it," Rex said.

Amana Names--

(Concluded from Page 1, Col. 5)

named assistant general manager and in 1954 was made a vice president. He became a member of the board of directors of the concern in 1956.

Pearce, a veteran of many years in the appliance field, was manager of sales training at Crosley Div. of Avco Mfg. Corp. for five years and later was vice president of Regan Film Productions. He joined Amana in 1955 as director of sales training and in May of 1957 became director of freezer sales.

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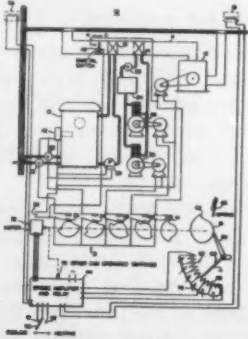
*Phone or write Acme for details

For more information about products advertised on this page use Information Center, page 18.

PATENTS

Week of August 6
(Continued)

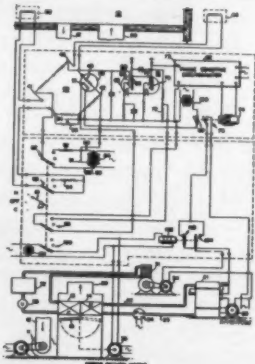
2,901,825. **CONTROL APPARATUS.** Carl J. Bishofberger, Minneapolis, Minn., assignor to Minneapolis-Honeywell Regulator Co., Minneapolis, Minn.
1. In control apparatus for controlling first, second, and third condition



changing means; switch means for controlling the operation of each of said condition changing means; motor means for controlling the operation of said switch means whereby operation of said first, second and third condition changing means is initiated in

the order named when said motor means operates in a forward direction; bridge network circuit means for controlling the operation of said motor means, said bridge network means having means responsive to a condition indicative of a need of operation of any one of said condition changing means; rebalance means associated with said circuit means and driven by said motor means, said rebalance means being effective only intermediate adjacent ranges of operation of said motor means in which operation of one of said switch means occur. . . .

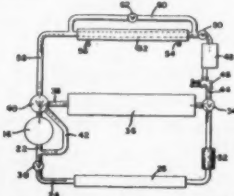
2,901,826. **CONTROL APPARATUS.** Sigward A. Stavnes, St. Paul, and John M. Wilson, Minneapolis, Minn., assignors to Minneapolis-Honeywell Regulator Co., Minneapolis, Minn.



1. In temperature control apparatus for controlling space temperature dur-

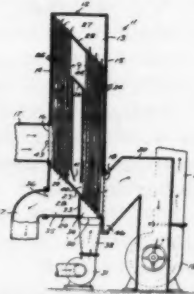
ing periods requiring either heating or cooling; a bridge circuit having a pair of terminals to which a plurality of branch circuits are connected, a first circuit having a temperature responsive resistance means responsive to space temperature and an output terminal, a second circuit having a temperature responsive resistance means responsive to outdoor temperature and a second output terminal; first switch means; first and second power source; first connection means including said switch means when in a first position for connecting said pair of terminals to said first power source; voltage dropping means; second connection means including said switch means when in a second position. . . .

2,901,827. **REFRIGERATING APPARATUS.** John Dolza, Davisburg, Mich., assignor to General Motors Corp., Detroit, Mich.



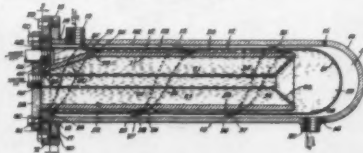
8. In an automobile air conditioning system selectively operable to either heat or cool air, compression refrigerating equipment including a compressor, a condenser, an air contacting coil, refrigerant flow means connecting said compressor, condenser and air contacting coil in series refrigerant flow relationship with the air contacting coil functioning as an evaporator, an engine having a waste heat dissipating device, power transmitting means between said engine and said compressor, and refrigerant flow conversion means including valve means for directing compressed refrigerant leaving said compressor directly into said air contacting coil so as to heat the air and condense the compressed refrigerant and for thereafter directing the condenser refrigerant into thermal exchange with said waste heat dissipating device. . . .

2,901,830. **HEAT EXCHANGE APPARATUS.** Martin Frisch, New York, N. Y., assignor to Foster Wheeler Corp., New York, N. Y.



1. A heat exchanger for exchanging heat between heating fluid and fluid to be heated, comprising a chamber having a wall with an inlet for receiving heating fluid and having a second wall with an outlet for discharging the heating fluid from said chamber, a plurality of tubular members disposed in said chamber and arranged in heat exchange relationship with said heating fluid, means for introducing fluid to be heated to said tubular members to provide passage to said fluid in indirect heat exchange relationship with said heating fluid, tube sheets supporting the ends of said tubular members and defining portions of the path of flow for said heating fluid in said chamber. . . .

2,901,831. **RIBBON SPIRAL FLOW HEAT EXCHANGER.** Allick Clarkson, Paul Spur, Ariz., assignor to Vapor Heating Corp., Chicago, Ill.



1. A heat exchange device comprising an outer cylindrical casing open at one end and closed at the other, an inner cylindrical shell open at one end and provided with a closure for the other and telescopically received within said casing in spaced relation to the walls thereof to provide a relatively narrow cylindrical space between said shell and said casing, an intermediate thin wall cylindrical partition member open at one end and closed at the other and telescopically received within said outer casing and encompassing said inner shell and with its closed end adjacent the open end of the inner shell and the closed end of the outer shell, the walls of said partition member being spaced from the walls of said outer casing and said inner shell and dividing said relatively narrow cylindrical space into a heating fluid passageway and a heated fluid passageway. . . .

2,901,869. **LATCHING MECHANISM.** Harry F. George, Chicago, Ill.

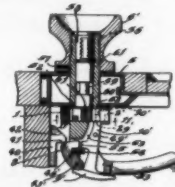
1. Latching mechanism, comprising, a shaft, a lock bar connected with the shaft for rotation therewith and for

Editor's Note: Patents described here have been selected from the "Official Gazette" of the United States Patent Office. They offer only a brief summary of each invention. In some instances only the first part of the digest is presented.

Printed copies of patents, reissued patents, and patent designs may be secured from the Patent Office; patents and reissues are 25¢ each, while designs are furnished at 10¢ each. Copies should be ordered by number and title and a mention of the fact if they are either Designs or Reissues.

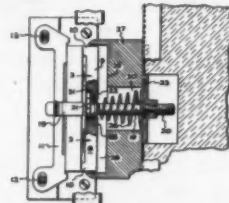
Address orders to: Commissioner of Patents, Washington 25, D. C.

transverse sliding movement with relation thereto, a stationary member having an opening into and out of which the lock bar is movable for locking and unlocking purposes, a lever



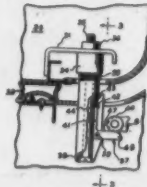
fulcrumed to said shaft to extend longitudinally thereof, said lever at one end being connected to move the lock bar upon swinging movement of the lever and having at its other end a finger member for manually swinging the lever, a laterally extending projection on the lever between the lever fulcrum and the finger member, and a latching nose pivotally mounted on the shaft for swinging laterally with relation to said shaft, a portion of said latching nose removed from its pivot being directly opposite said projection so that when said nose is swung inwardly of the shaft it will contact said projection when the lock bar is in locking position and swing the lever to move the lock bar into unlocked position.

2,901,870. **MAGNETIC LATCH.** Peter E. Davey, Fern Creek, Ky., assignor to General Electric Co., a corporation of New York.



1. In a magnetic latch for holding a door member engaged with a cabinet member, and including cooperating magnet and armature elements positioned opposite each other on said members, a structure mounted on one of said members for supporting the associated one of said elements thereon, said structure including an adjustable supporting member having a tapered portion, means mounting said one element on said supporting member with said one element being movable therealong, a spring biasing said one element against said tapered portion of said supporting member thereby resiliently to hold said one element in a normal position, said one element being movable against said spring to cushion the impact as said door member is closed and being adapted to swivel on said tapered portion to correct for misalignment of said cabinet member and said door member, a guide member limiting the extent of the swiveling movement of said one element and constraining said one element against rotational movement, and means for adjusting the position of said supporting member relative to the face of said one member thereby to adjust said normal position of said one element to allow for variations in the closed position of said door member relative to said cabinet member.

2,901,872. **SAFETY STRIKE.** William R. Jewell, Lyndon, Ky., assignor to General Electric Co., a corporation of New York.

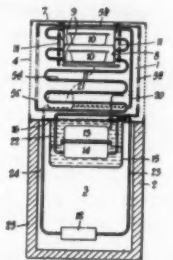


1. A safety strike for use with a positive latch, said strike comprising a body portion, means at one end of said body portion for mounting said

strike on a door jamb in operative relation with a positive latch mounted on a door, a latch engaging member having a latch engaging arm and an anchoring arm extending normal to said latch engaging arm, means for pivotally mounting said member adjacent the other end of said body portion with said anchoring arm extending toward said one end of said body portion, means secured to said body portion and engaging said anchoring arm for holding said latch arm in its normal latch engaging position against normal latch pressures and for releasing said anchoring arm when the latch pressure on said latch arm is greater than normal.

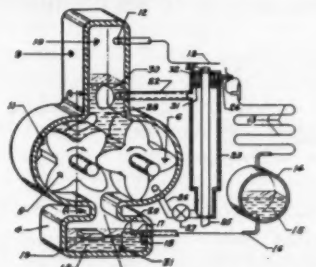
Week of August 13

2,902,342. **HEAT PUMPS.** John Gray, Epsom, England, assignor to Brentford Electric Ltd., Kidbrooke, London, England, a British company.



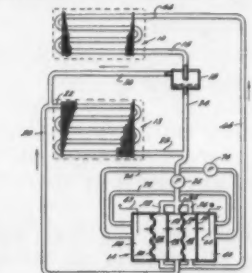
1. In a heat pump a refrigerator chamber, a hot water container upon which the refrigerator chamber is located, a condenser for the refrigerant within the hot water container, a casing disposed within the hot water container, a motor, a compressor driven by the motor, both said motor and compressor being disposed in said casing, the walls of said casing being of good thermal conducting material and the casing being charged with hydraulic fluid so that the motor and compressor are immersed in the hydraulic fluid, electrical leads for the motor insulated from the water container, and evaporator piping within the refrigerator chamber and arranged for part of its length as contiguous tubes to form part of the wall of the refrigerator chamber and including as a closed refrigerating circuit the compressor and condenser.

2,902,343. **SEALING REFRIGERATION COMPRESSORS FOR AUTOMOTIVE AIR CONDITIONING.** George E. Seldon, Kirkwood, Mo.



3. In an intermittently operated mechanical refrigeration system comprising operatively connected components including a condenser, a receiver, a boiler and a gear compressor; a charge of water refrigerant and a charge of compressor sealing oil distributed throughout said components; said gear compressor and said boiler having a common housing with a common connecting port, said gear compressor having a pair of gears with meshing teeth, said housing fitting closely but spaced from said mating gears, said oil sealing the space between said housing and said gears, a plenum chamber connected between said compressor and said condenser. . . .

2,902,344. **ELECTRODIALYSIS OF SOLUTIONS IN ABSORPTION REFRIGERATION.** Robert B. Witherell, Bloomington, Ill., assignor, by mesne assignments, to Eureka Williams Corp., a corporation of New York.



1. A refrigerating system including an evaporator, an absorber, an electro dialyzer and a working fluid comprising an electrolyte solution wherein said electro dialyzer separates said working fluid as discharged from said absorber into a liquid refrigerant and an absorbent, means for conducting said refrigerant to said evaporator and said absorbent to said absorber, said absorber being in communication with said evaporator so that refrigerant vapor evolved therein may be conducted to said absorber for absorption into said absorbent.

(To Be Continued)

CLASSIFIED ADVERTISING

RATES for "Positions Wanted" \$7.50 per insertion. Limit 50 words. 15¢ per word over 50.

RATES for all other classifications \$10.00 per insertion. Limit 50 words. 20¢ per word over 50.

ADVERTISEMENTS set in usual classified style. Box addresses count as five words, other address by actual word count. Please send payment with order.

POSITIONS WANTED

SALES ENGINEER—Graduate mechanical (B.S.) registered professional engineer, age 32. Have 8 years' experience in air conditioning and refrigeration sales, application, design and installation supervision in industrial, commercial and residential systems. Complete resume and top references available. Presently located in Detroit. Will relocate. Family man. BOX A5878, Air Conditioning & Refrigeration News.

YOUNG, QUALIFIED, graduate mechanical engineer desires association with an organization engaged in applied air conditioning, heating, and refrigeration activities which would incorporate engineering and either or both the contracting and sales functions. Would greatly appreciate the opportunity of submitting a complete resume detailing education and experience. BOX A5880, Air Conditioning & Refrigeration News.

MANUFACTURING PRODUCTION and purchasing executive, with more than 25 years' experience in refrigeration and appliance unitary equipment and components, seeks new position. Has been operating recently as purchasing official and administrative assistant to manager of manufacturing and purchasing. Earlier experience includes plant operation, inspection administration, and service department administration. Age 52. Married, no family. Will relocate anywhere if job is right. BOX A5881, Air Conditioning & Refrigeration News.

POSITIONS AVAILABLE

CHIEF DRAFTSMAN (Richmond, Va.) Rapidly growing manufacturer of air conditioning and refrigeration units must have design draftsman with 3 to 5 years' supervisory experience in this field. Position carries excellent salary remuneration. Send complete resume of experience and earnings to: CHIEF DRAFTSMAN, P.O. Box 466, Richmond, Virginia.

WANTED: MANUFACTURER'S agents, distributors, and dealers Midwest and Northeast for high capacity air-cooled remote air conditioning line. We can sell all equipment for 3 tons of cooling with central heat as low as \$599.00. NATCO, P. O. Box 7464, Houston, Texas.

REFRIGERATION ENGINEER (Richmond, Va.) Proficient in designing and development of air conditioning and refrigeration units. Must have three to five years' experience in this field. Salary commensurate with ability. Excellent opportunity. Send resume, including experience and earnings to: REFRIGERATION ENGINEER, P.O. Box 466, Richmond, Virginia.

SALESMAN—COMMERCIAL refrigeration—Youngstown-Sharon territory. Call on dealers and commercial users and

some industrials. Sales experience in commercial refrigeration required. Salary \$550-\$750. Submit experience record in confidence or contact Mr. Fennell, TOMSETT ASSOCIATES, INC. Personnel Counselors, 431 Frick Bldg., Pittsburgh 19, Pa. ATLantic 1-8676.

COMMERCIAL REFRIGERATOR manufacturer is looking for district manager for Chicago territory. Initial groundwork is laid for an opportunity that will reward an aggressive, earnest man capable of supervising dealers and selling direct to chains, cooperating with voluntary groups, etc. Remuneration open for discussion; an equitable basis can be arrived at that should insure more earnings than you are now making. All replies confidential. Write BOX A5876, Air Conditioning & Refrigeration News.

NORMALLY, YOU don't answer classified. Nevertheless, you've nothing to lose, everything to gain by answering this one. All replies strictly confidential. We are a manufacturer with dealers in the Chicago area, a product that sells—but need a territory manager to work with dealers, appoint new ones, and sell direct to buyers where multiple units are involved. Commercial refrigeration or similar selling experience might be helpful, but we're willing to train a man with good background who is ambitious. If you are earning under \$10,000 annually you'll still be considered if it is because you just haven't had time to arrive at that bracket. Write BOX A5877, Air Conditioning & Refrigeration News.

REFRIGERATION SERVICE engineer wanted for installation and service work on controlled temperature-humidity and altitude test chambers. We are looking for a man with at least 3 years of commercial refrigeration experience and one who is free to travel the Middle West states. Reply BOX A5879, Air Conditioning & Refrigeration News.

SERVICE MANAGER, to handle construction and service department of Carrier distributor-contractor in large Ohio city. Familiarity with Carrier products desirable, although not absolutely necessary. Experienced man preferred. Interview at our expense. Please write details and background BOX A5882, Air Conditioning & Refrigeration News. All replies held strictly confidential.

WANTED—MANUFACTURER'S agents to contact distributors and dealers for established air conditioning organization. Some valuable territories open with many prospects. Agents contacting commercial and restaurant trade will find this franchise of unusual interest. Reply to BOX A5883, Air Conditioning & Refrigeration News.

EQUIPMENT FOR SALE

FOR SALE—Surplus inventory of Fiberglas one inch thick Number 800 and type A. Cut to sizes from 13" x 23" to 25" x 40" in original containers. KOCH ENGINEERING COMPANY, 321 West Douglas Ave., Wichita, Kansas.

MISCELLANEOUS

ATTENTION SERVICEMEN: Send for free circulars and bulletins on refrigeration parts and equipment. Real money saving values: WALTER W. STARR, 2833 Lincoln Avenue, Chicago 13, Illinois.

114 Installed Thus Far

St. Louis Utility's Heat Pump Drive Emphasizes Insulation; Finds Cost of Electric Heating 'Much Less' than Anticipated

By George M. Hanning

ST. LOUIS—The Union Electric Co. will "kick off" a greatly intensified promotion of electric heating and heat pumps with a special section in the St. Louis *Post-Dispatch* on Sept. 24.

A similar section is scheduled to appear in the St. Louis *Globe-Democrat* on Oct. 8.

Emphasis in the promotion will be placed on the importance of adequate insulation particularly for electric heating, according to S. S. Sansbury, manager of sales development and training for the utility.

"By that we mean minimums of 2, 4, and 6-in. thicknesses of mineral wool or the equivalent, carefully installed to proper density together with proper vapor seals, for floor, wall, and ceiling insulation, together with double or triple glass or storm sash.

'Assures Customer Satisfaction'

"This will . . . assure customer satisfaction with heating and cooling results and with operating costs."

Sansbury pointed out that the power cost of electric heating justifies the installation of added insulation and heat resistant glass.

Properly insulated, a home here can be heated and cooled for about 13 cents per sq. ft., he said. The big difference in operating costs is in the inade-

	HEAT PUMPS — INSTALLED AND IN OPERATION —						HEAT PUMPS CONTRACTED FOR BUT NOT YET INSTALLED	
	No. of Installations This Month	Year to Date	Total On System	No. of Units This Month	Year to Date	Total On System	Cumulative Year To Date No. of In- stallations	No. of Units
Residential								
Air Source	3	19	57	9	19	58	10	10
Water Source	..	..	..	..	..	..	1	2
Ground Source	..	..	14	..	..	27	..	..
Commercial								
Air Source	2	9	39	5	18	82	2	15
Water Source	..	..	1	..	..	2	..	..
Ground Source	..	..	..	..	..	..	..	..
Industrial								
Air Source	..	1	2	..	2	3	..	..
Water Source	..	..	1	..	..	1	..	..
Ground Source	..	..	..	..	..	..	..	..
Total	5	29	114	14	39	173	13	27

quate application of insulation, he added.

"If the air conditioning dealer would follow up to see that the insulation is applied properly and as specified, he will eliminate a lot of trouble that he gets into later because the heat loss is greater than he calculated," Sansbury declared.

Sansbury said that at the end of July there were 114 heat pump installations on the system's lines. Twenty-nine installations involving 39 units were made in the first seven months of this year. In addition, there were 13 installations involving 27 heat pumps contracted for but not yet completed as of that date.

71 Heat Pumps Placed In Homes

Of the heat pumps installed on Union Electric lines so far, 71 are in residences, 40 on com-

mercial applications, and three are industrial.

Sansbury pointed out that the utility does not give any special rate to heat pump users. On the other hand, he noted, Union Electric offers a favorable standard rate per kwh. and makes no demand charge. The residential rate is 1.75 per kwh. and the commercial rate 1.8 per kwh.

From actual records after a year's operation, he said, a 7,121-sq. ft. supermarket using four 5-ton heat pumps was able to heat and cool its building for 12 cents per sq. ft.

An 11,000-sq. ft. office building was able to heat and cool for 23 cents a sq. ft.

We are finding that the cost of electric heating is considerably less than anticipated, based on current methods of figuring heat losses, Sansbury noted.

With proper insulation and other heat resisting features, much less heat is actually needed than is figured.

Sansbury remarked that with system peaks now determined by the impact of summer air conditioning and with loads growing more rapidly in hot weather than in the winter season, Union Electric's interest in expanding the use of electricity for space heating by means of resistance heaters or the heat pump is obvious and impelling.

In view of this, the utility issued a new statement of policy last spring regarding electric heating and heat pumps in particular. The utility has had general acceptance of the policy, he added.

Policy Stresses Insulation

That policy stresses the importance of adequate insulation and asserts that the company

"expects to maintain a flexible attitude in establishing precise requirements for cooperation where the product is new or the application experience is limited."

It added that the "present state of the art justifies the following as the minimum to be expected of a manufacturer, his local distributor, and associated installing dealers:

"1. To require thermal insulation on residential installations which will limit the heat loss of the structure to the lowest figure that can be economically justified; to encourage improved insulation standards on commercial and industrial installations; and to specify on all proposals the full details of the insulation specifications upon which the performance quotation is based.

"2. To: a) make loss and/or heat gain calculations in accordance with acceptable engineering methods.

"b) provide a copy of each calculation together with estimate of electrical consumption for heating and cooling to Union Electric for review and for designation of the proper rate application.

"3. To provide accurate performance data on each model of heat pump to the company and to demonstrate the service reliability of the equipment, the adequacy and reliability of the automatic controls and protective relays, and the competence of its application engineering service to provide satisfactory heating and air conditioning results.

"4. To obtain from the company prior to sale the service characteristics (single or three phase, or three phase four wire available at the location at which installation is to be made), as well as company's approval of starting currents for across the line starting, or company's requirements for starting devices in cases where across the line starting cannot be approved and undertake to supply equipment that meets these requirements.

"5. To apply heat pumps employing supplementary resistance heaters so that balance points will approach the outside design temperature as closely as possible and will not exceed it by more than 20° F. unless company approval of a higher figure is obtained in writing in advance of the submission of the proposal.

"6. To offer adequate service and performance warranty or guarantee on the heating and air conditioning installation.

"7. To provide competent repair service, to maintain an adequate supply of repair and replacement parts so as to permit prompt restoration of service after any interruption and to provide for telephone contacts on a 24-hour basis during the heating season."

Motor Products Buys Into Holland Furnace

DETROIT — Disclosing that Motor Products Corp. here has acquired 100,000 shares of common stock of Holland Furnace Co. in the open market, R. J. Nixon, Motor Products president, said his company is "convinced that Holland Furnace has a great potential in the residential heating and air conditioning field despite its recent poor earnings record."

Nixon said that "we have advised the Holland management of our acquisition and have had a thorough discussion of our interest in the company." Motor Products hasn't asked for representation on Holland's board, it was reported.

His company has other mergers and acquisitions in the conference stage, Nixon said.

Earlier this year, Arnold Maremont, board chairman, estimated that Motor Products would have about \$10 million of assets when it terminates its own manufacturing of airframe and jet engine assemblies in October. This included about \$7 million in cash and over \$3 million in real estate and accounts receivable.

Holland Furnace of Holland, Mich. on June 30 had 883,584 common shares outstanding. It reported 1956 earnings of \$494,568 or 56 cents a share on sales of \$31,583,186.

Trane Gets Defense Award

LA CROSSE, Wis.—A Dept. of Defense Reserve award certificate for outstanding cooperation with the Armed Forces Reserve was presented recently to The Trane Co., air conditioning and heating equipment manufacturer, by high ranking Army officers.

Iron Fireman To Consolidate All Heating Div. In Cleveland Plants

CLEVELAND—All manufacturing components of Iron Fireman Mfg. Co.'s heating division will be consolidated in Cleveland this fall with the acquisition of a third plant in this city, First Vice President Lewis Cox announced.

He said the company has acquired an industrial plant on West 106th St., located between the two Cleveland plants.

The SelecTemp Div., now operating at Ligonier, Ind., will be transferred here completely by Jan. 1, 1958. Cox said the move will materially reduce some production costs and will simplify operational supervision.

The new property has approximately 25,000 sq. ft. of

manufacturing space. The Ligonier property will be leased to another company. The move will add approximately 75 employees in Cleveland.

In addition to the three Cleveland plants, Iron Fireman operates two plants at Portland, Ore., one of which subcontracts military and commercial aircraft parts.

The other manufactures electronic parts for the heating and aircraft industries. Iron Fireman also operates a plant at Toronto, Can.

The Cleveland plants produce heating and power equipment for use with oil, gas, and coal, and the SelecTemp heating system.

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Institute--

(Concluded from Page 1, Col. 2)

9:45 p.m. beginning Oct. 1. Tenth session Dec. 3 will be a banquet and evaluation session.

Enrollment will be limited to 25 to permit each contractor greater participation in discussions. Fee is \$50, which also covers necessary books and the final banquet.

Speakers at the weekly sessions will be drawn from the university faculty and Fort Worth financial circles. One contractor is on the program—Paul V. Barmann, head of Lydick-Barmann Co. here.

Barmann, incidentally, headed up the association committee that worked out plans for the management institute with Dr. Cortell K. Holsapple, chairman of the university's short course committee.

The nine topics to be covered, and the speakers, are as follows:

"Organizing Your Business," by Fred Disney, management consultant.

"Installing an Accounting System In Your Business," by Neil R. Alexander, controller of the Fort Worth Tribune.

"Financing Your Business," by Harris Bass, vice president, Bank of Commerce.

"Profit Is Your Business," by Paul V. Barmann.

"Insurance for Your Business," by Dr. Kenneth Herrick, T.C.U. School of Business.

"Tax Affairs of Your Business," by J. Warren Day, senior partner, Day, Benton, and Frazier, tax consultants.

"Wage and Hour Laws and Your Business," by Karl H. Mueller, attorney.

"Human Relations In Your Business," by R. C. Forman and U. H. Shaw, consultants.

"Advertising and Your Business," by Roy Bacus, commercial manager of WBAP-TV.

Room Coolers--

(Concluded from Page 1, Col. 5)

the manufacturer-distributor inventory will be moving into retailer hands within the next few months, as dealers stock up for what the manufacturers believe will be a banner year for room units.

Manufacturers at the session, representing companies producing more than 90% of the total U. S. output of room units, said they were concentrating sales programming on selling room units to large contract projects, such as new housing, hospitals, hotels, and motels.

Many of the manufacturers said they already have commitments to move quantities of units included in the inventory, but that the projects into which they are to be installed are not yet ready for them.

Many thousands of units will move out of inventory before Jan. 1, and it is expected that the industry will go into 1958 with approximately the same quantity of units as were available at the beginning of 1957, it was stated.

The group also discussed a program of group promotional activities looking toward lengthening the traditional summer season for room air conditioners and "selling" the benefits of air conditioning from a health and family welfare standpoint.

Auto Air Conditioner Clinic--

(Concluded from Page 1, Col. 2)

"Furthermore," as Detroit Controls' Frank Carter smilingly put it, "we not only have to design special controls, but produce extra good models for Texas."

Dramatic demonstration of specialized design was provided by Tecumseh Products, Lehigh Mfg., and Frigidaire—each of which displayed ingenious, tiny, high-output compressors for 1958 lines of automotive air conditioners.

The Tecumseh and Lehigh entries are intended particularly for independent manufacturers, whose equipment recirculates the air inside automobiles. Frigidaire's unique compressor (five cylinders activated by a wobble-plate) is meant chiefly for factory installation. General Motors, like Ford and Chrysler, pulls

outside air into factory-installed car air conditioners—hence require greater capacity and more expensive systems.

Incidentally, compressors for automotive air conditioning are not rated in the familiar terms of horsepower, tons, or B.t.u. They're measured by cubic inches of displacement.

Exhibits at this SAE meeting included actual working installations in every make of American car from Edsel to Rambler—plus a \$1,200 deluxe job in an \$18,000 Rolls Royce.

General manager of the exhibition, and chairman of the technical discussions, was William E. Lind of the Frigikar Corp. (Reports of these technical parleys will appear in a subsequent issue of the NEWS). George F. Taubeneck, editor and publisher of AIR CONDITIONING

& REFRIGERATION NEWS, was the banquet speaker.

Panel members and other speakers included:

Compressor forum panel: Fred Randall, chief engineer, Tecumseh Products (Marion, Ohio); Ray Schultz, section engineer, Frigidaire; and Lathe Hammond, director of engineering, Lehigh Mfg.

Refrigeration controls forum panel: Del Albright, chief appliance engineer, A-P Controls; Keith Wilson, chief refrigeration engineer, General Controls; and Frank Carter, manager, Refrigeration Div., Detroit Controls.

Also, Dean Rockwell, general manager, Tube Manifold Corp., who discussed "A New Desiccant"; Charles W. Modersohn, chief engineer, Warner Electric Brake & Clutch Co., who spoke on "Electric Clutch Developments"; and Clyde Hamner, chief project engineer, Duralas-

tic Products Co., who discussed "Designing for Premix to Reduce Cost and Increase Utility."

Independent manufacturers who exhibited at the event included A.R.A. Mfg. Co., Fort Worth; Artic-Kar Mfg. Co., Dallas; Cartrol, Inc., Kansas City, Mo.; Clardy Auto Air Conditioning Co., Fort Worth; Climatic-Air, Tyler, Texas; Eaton Mfg. Co., Cleveland; The Forston Co., Houston; Frigikar Corp., Dallas; Frigiquip Corp., Oklahoma City; Lomerc Corp., Houston; John E. Mitchell Co., Mark IV Div., Dallas; Novi Equipment Co., Novi, Mich.; Mobil-Aire Mfg. Co., Denison, Texas; Park-O-Mat Mfg. Co., Dallas; Tex-temp Mfg. Co., Dallas; and O. A. Sutton Co., Wichita, Kan.

Cars with factory-installed air conditioners were exhibited by American Motors Corp., Chrysler Corp., Ford Motor Co., General Motors Corp., and Studebaker-Packard Corp.

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